USDA United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with the Arkansas Agricultural Experiment Station

Soil Survey of Woodruff County, Arkansas

How to Use This Soil Survey

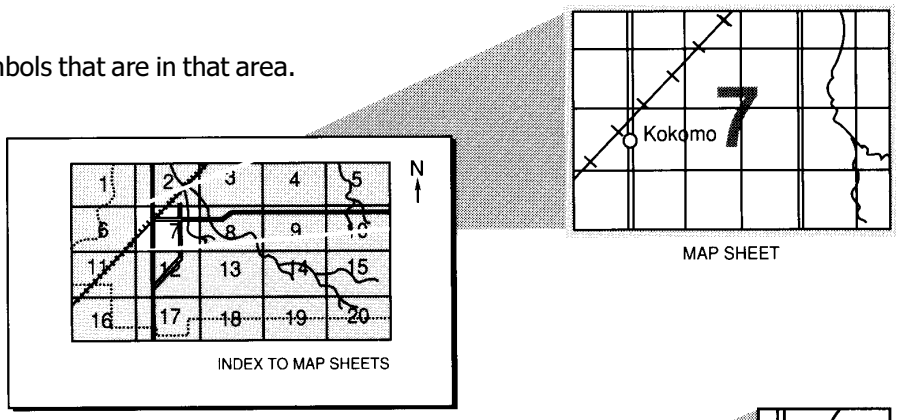
Detailed Soil Maps

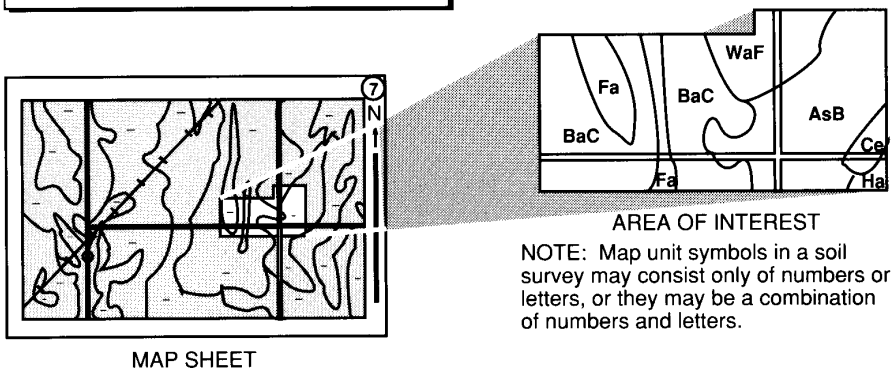
The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.





NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1991. Soil names and descriptions were approved in 1995. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1995. This survey was made cooperatively by the Natural Resources Conservation Service and the Arkansas Agricultural Experiment Station. The survey is part of the technical assistance furnished to the Woodruff County Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: Milo growing in an area of Yancopin silty clay loam, 0 to 3 percent slopes, frequently flooded.

Issued August 2002

Contents

Foreword

This soil survey contains information that can be used in land-planning programs in Woodruff County. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

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Soil Survey of Woodruff County, Arkansas

By Cornelius Harris, Natural Resources Conservation Service

Fieldwork by Cornelius Harris and Kenneth Crader, Jr., Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
the Arkansas Agricultural Experiment Station

Woodruff County is in east-central Arkansas on the east bank of the White River. It is roughly rectangular in shape and is about 33 miles from north to south and about 24 miles from east to west. Woodruff County has a total area of 380,103 acres, or about 577 square miles. The county is bounded on the north by Jackson County, on the south by St. Francis and Monroe Counties, on the east by Cross and St. Francis Counties and on the west by Prairie and White Counties.

In 1990, the population of Woodruff County was 9,520. Augusta, with a population of 2,759, is the county seat. Other important trading centers are McCrory, with a population of 1,971; Cotton Plant, with a population of 1,150; Patterson, with a population of 445; and Hunter, with a population of 137.

The economy of Woodruff County is based primarily on farming. Except for a few manufacturing plants in Augusta and McCrory, most local businesses provide agricultural services.

Figure 1.—Location of Woodruff County in Arkansas.

General Nature of the County

This section discusses farming, physiography, drainage, and the climate in Woodruff County.

Farming

Before DeSoto crossed the Mississippi River into Arkansas, the Chickasaw Indians occupied the first known settlement in Woodruff County.

Settlers first came to Woodruff County in the early 1800's. Many of them came from the Carolinas, Georgia, and other areas of the eastern United States. When these settlers arrived, almost the entire county was covered in gigantic hardwood forests intermingled with canebrakes, streams, lakes, bayous, and cypress brakes. A few areas near Hunter were native prairies, which were treeless in general, but had scattered trees along their borders. The early settlers cleared small areas on higher better drained natural levees to grow vegetables and corn for their own use and to grow cotton as a money crop. Game and fish were plentiful and supplied most of their meat.

After Arkansas was admitted to the Union in 1836, more and more acreage was farmed, and large plantations were cleared to grow cotton, corn, small grains, and pasture. The acreage in cotton rapidly increased, and cotton soon became the major cash crop.

In the early 1900's extensive drainage systems were installed which lead to rapid expansion of farming in the wetter areas and to a great reduction in the acreage of woodland. Rice and soybeans were also introduced in the early to mid-1900's and both have become important crops in Woodruff County. As machinery replaced livestock as a source of power, corn and other feed grains declined in importance. Acreage allotments were placed on cotton, and its importance also declined.

At present, soybeans and rice are the major crops grown in this county. Cotton, corn, grain sorghum, and wheat are other important crops. A few farmers raise catfish, truck crops, and beef cattle along with their row crop operation. The acreage of woodland is increasing somewhat because of government programs promoting reforestation of wetlands and highly erodible land.

According to the 1992 Census of Agriculture, about 70 percent of Woodruff County is in farms. The rest consists of wooded tracts, state and federally-owned land, towns, transportation, and utility facilities.

Farms in Woodruff County are decreasing in number and increasing in size. Between 1987 and 1992, the number of farms decreased from 309 to 248. During the same period, the average farm size increased from 872 acres to 1,108 acres.

Most farms in Woodruff County are large enough to require hired laborers. The larger farms are operated by laborers who are supervised by a owner, manager, or tenant. Tenants pay a fixed rent or percentage of the crop for use of the land. Most of the land is farmed by operators who are highly efficient and use the latest technologies available.

Physiography and Drainage

The geologic deposits at the surface of Woodruff County are unconsolidated sediments laid down by water and wind. Generally, water deposited clayey, silty, and loamy sediments make up the western and central parts of the county, and wind deposited silty sediments make up the eastern part and Nubbin Ridge between the Cache River and Bayou Deview in the south central part of the county. Windblown sandy sediments cover the alluvial deposits around Augusta north to Fitzhugh and in the vicinity of Gregory.

Topographically, Woodruff County can be divided into three main regions: the level to nearly level flood plains; the level to gently sloping alluvial terrace areas in the central part of the county; and the level to gently sloping loess covered terraces in the eastern part of the county. The topography of the flood plains range from broad flats to natural levees that borders abandoned and active streams channels. Slope differences are generally less than 1 percent on the flats and range to 3 percent on side slopes of natural levees. The major soils in this area are Yancopin and Kobel soils.

In the alluvial terrace region, the topography ranges from broads flats to gently sloping ridges and flood plains along natural drains. Slopes generally range from less than 1 percent to 8 percent. The major soils in this area are Askew, Bonn, Bulltown, Dubbs, Dundee, Foley, Jackport, Overcup, McCrory, Teksob, Tuckerman, and Wiville soils.

In the loess terrace region, the topography is characterized by broad flats to gently sloping ridges and narrow winding drainageways. Slopes within the drainageways range from 0 to 2 percent. The major soils in this area are Calhoun, Calloway, Grenada, Henry, Oaklimeter, and Tichnor.

Drainage in the western part of Woodruff County is generally southward through a system of natural drainageways. The major drainageway in the western part of the county is the White River.

The White River is a graded stream with a well defined channel flowing southward. The flow is regulated by major flood-control impoundments upstream from Woodruff County. It is open to barge traffic the year round. This river, along with its many oxbow lakes, also provides recreation in the form of boating, fishing, and hunting. Fish and mussels are removed in commercial quantities. All watersheds in Woodruff County drain into White River, except for a part of the east section that drains into the L'Anguille River.

Flooding occurs during the winter or spring almost every year along the White River and its tributaries, except for 7,000 acres south of the Jackson County line and about 20,000 acres north of the Prairie County line. These areas are protected by levees. The surface water drains from the area through artificial drains and the natural drains that follow the course of former river channels. There is a good supply of ground water for irrigation. Elevation in these areas are about 200 feet near the Jackson County line to about 190 feet near the Prairie County line.

The central part of the county is drained by Cache River and Bayou Deview. Other creeks draining water from the area are Buffalo Creek, Cache Bayou, Maple Creek, Roaring Slough, and many artificial drains. Flooding occurs annually during winter and spring along low lying areas along rivers and streams. The

widespread use of ground water for all crops grown in the area has resulted in the drilling of several hundred wells. There is a good supply of ground water for irrigation and home use; however, ground water levels have been declining in recent years.

The eastern part of the county is drained by Bayou Deview, Big Creek, Caney Creek, and Second Creek. Ground water for irrigation and home use is adequate. The ground water level is declining and some wells in the southeastern part of the area has yielded water with a high content of salts. Flooding occurs during the winter and spring almost every year in low lying areas along most streams in the area. Ponded water is common in some parts of the area after heavy rains.

Geomorphology

Woodruff County is located in the physiographic division of the Lower Mississippi Valley known as the western lowlands. The principal drainage of the county includes Cache River, Bayou Deview, and White River. Although the regional slope of the county is to the south, the topography also exhibits a distinctive westward slope starting east of Bayou Deview. The slope is a result of a series of terrace levels created because of the downcutting and progressive westward shifting of the braided streams that deposited the bulk of the lowland sediments. The lowest relief and consistently flattest terrain occurs on the flood plain of the White River.

The geologic events that were largely responsible for the creation of the western lowlands began during the early or middle part of the Quaternary Period. Early in the Quaternary Period, the Mississippi and Ohio Rivers began to exert a strong influence on the western lowland area. Present concepts of alluvial valley history and chronology indicate that the large volume of glacial outwash that fill the western lowlands and that form the higher terrace levels was derived from the meeting of the early Wisconsin glaciation prior to about 30,000 years ago. There can be no doubt that the lowlands area was once completely filled to a level equal to the highest level mapped; that is the Qtb2 level. The progressive downcutting and westward shifting of the ancestral Mississippi River that created the terraces probably occurred shortly after the waning or decline of the glaciation during the latter part of the brief mid-Wisconsin interglacial stage known as the Farmdalian Substage.

One of the more conspicuous Holocene features in the western lowlands is the abandoned meander belt which is currently occupied by the Cache River which was obviously created by a much larger stream. An explanation for this feature is that it was formed by the combined flow of the Black and St. Francis Rivers prior to the time the former stream diverted westward to the base of the Ozark escarpment. The abandoned meander belt occurs in the form of a low terrace (Qtc) along most of Cache River, since it is slightly entrenched.

There are three major geomorphic surfaces in Woodruff County: erosion surfaces, terraces, and alluvial plains.

A series of erosion surfaces occurs on level Qtb2. This is the highest level in Woodruff County, with elevations ranging from 210 feet to 225 feet above sea level. Slope gradients range from less than 1 percent to 8 percent. This level has 2 to 3 feet of Peoria loess underlain by Loveland loess. The Loveland rests on the Quaternary alluvial deposits that were derived from the melting of the Early Wisconsin glaciation prior to about 30,000 years ago. This large volume of alluvial sediments was derived from glacial outwash from the Mississippi and Missouri Rivers' drainage basin and deposited by those rivers. The source of the initial phase of loess deposition about 20,000 to 25,000 years ago, were the Mississippi valley train on the west side of the western lowlands. The climate then was characterized by heavy warm season precipitation with dry and windy cool seasons.

The geomorphic surface in the central part of the county is made up of three terrace levels—Qtb3, Qtb4, Qtc—and the flood plains of Cache River, Bayou Deview, and other smaller streams.

The area is about 31 miles from north to south and about 13 miles wide. It is bound on the east by Bayou Deview and on the west by the White River flood plain. The elevation in the area ranges from about 205 feet to 225 feet. Slope ranges from 0 percent to 8 percent.

Although continental ice sheets did not actually extend into this area, they nevertheless were responsible for creating the southward-trending rivers which carried large volumes of glacial meltwater and outwash. These rivers were responsible for alluvial deposits and for the formation of the different terrace levels.

The Qtb3 terrace, which is the highest level on the surface, is composed of clayey, loamy, and sandy soils. The clayey soils are abandoned flood plain backswamp areas. The soils are level and poorly drained. The loamy soils are level to gently sloping and well drained. An unusual aspect of the Qtb3 level is the tracts of sand dunes that lie principally just east of and parallel to the White River. The dunes apparently lie on the bars and braided channel islands of the last Mississippi River valley train to be active in the area. This valley train is presumed to be the source of the sand of which the dunes are composed. The slopes in

the dune area are 0 to 8 percent, and drainage is somewhat poorly drained to somewhat excessively drained. The highest dunes and the most extensive contiguous areas occur north of Augusta and north and east of Fitzhugh.

The Qtb4 terrace level is 10 to 15 feet lower in elevation than the Qtb3 level. The soils are loamy and silty. Drainage is poorly drained, somewhat poorly drained, and well drained. Slope ranges from 0 to 6 percent.

The Qtc level is a low terrace along most of Cache River. A similar terrace level occurs along Bayou Deview. The soils on this terrace are loamy and silty. Drainage ranges from poorly drained to moderately well drained. Slopes are 0 to 3 percent. This is the lowest terrace level in the area. Most of the soils on the Qtc level are easily managed, except for some areas that are subject to flooding annually.

There are some problem soils that require special remedial measures and management practices, because they contain excessive concentrations of exchangeable sodium at shallow depths in the profile.

Salted and sodium soils are more common in the arid regions. The anomalous presence of sodium soils in the humid region, where the annual precipitation ranges from 40 to 60 inches and the mean annual temperature from 50 to 60 degrees, is difficult to explain. There are four major sodium affected soils on this level—Bonn silt loam, Foley silt loam, Lafe silt loam, and McCrory fine sandy loam.

The presence of relative large concentrations of sodium salts dissolved in water and brought into contact with plant roots will cause the plant cells to erupt this action called plasmolysis, will cause the plant to wilt, or the plant will finally die. Earthen embankments constructed of sodium affected soil material fail quickly because sodium affected soils are dispersed and cracks form easily.

Cache River is a meandering stream that flows southward through the central part of the county and empties into the White River near Clarendon in Monroe County. Its meander belt is more than 1 mile wide at the northern part of the county and nearly 3 miles wide at the southern part of the county. The channel belt is composed of alluvial valley and outwash train deposits of Pleistocene age. The landscape is characterized by having abandoned channels, abandoned courses, oxbow lakes, point bar deposits, and undifferentiated material.

Most of the soils are old, evidenced by having strongly developed argillic horizons and highly leached alluvial horizon that rests on the argillic horizon. Elevations in the area range from 180 feet to about 200 feet above sea level. Slopes range from 0 percent to about 3 percent. The area is flooded annually for long durations.

White River is a meandering stream that flows southward along the western side of the county and empties into the Mississippi River about 30 miles south of Elaine. Its meander belt ranges from 6 miles wide at the northern part of the county to 10 miles wide at the southern part of the county. The channel belt is composed of alluvial deposits of Holocene age. The thickness of the alluvial deposits is about 150 feet.

The ancestral Mississippi River flowed down the route of the White River about 25,000 years ago. The progressive downcutting and westward shifting of the ancestral Mississippi River that created the terraces probably occurred shortly after the decline of the glaciation substage. About 12,000 years ago, the Mississippi River diverted itself through a gap in Crowley's Ridge and developed its present route.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Brinkley in the period 1951 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 41 degrees F and the average daily minimum temperature is 31 degrees. In summer, the average temperature is 80 degrees and the average daily maximum temperature is 91 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 50 inches. Of this, 25 inches, or 50 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 11 inches. Thunderstorms occur on about 57 days each year, and most occur in summer.

The average seasonal snowfall is 5 inches. The greatest snow depth at any one time during the period of record was 12 inches. On an average of 3 days, at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 80 percent. The sun shines

71 percent of the time possible in summer and 51 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, 10 miles per hour, in spring.

How This Survey Was Made

This survey was made to provide information about the soils in the survey area. The information includes a description of the soils and their location and a discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; and the kinds of crops and native plants growing on the soils. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material from which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils in the survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils in the survey area and relating their position to specific segments of the landscape, a soil scientist develops a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. The system of taxonomic classification used in the United States is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area are generally collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot assure that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by two or three kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a

taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of soils of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. In the detailed soil map units, these latter soils are called inclusions or included soils.

Most inclusions have properties and behavioral patterns similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting (similar) inclusions. They may or may not be mentioned in the map unit descriptions. Other inclusions, however, have properties and behavior divergent enough to affect use or require different management. These are contrasting (dissimilar) inclusions. They generally occupy small areas and cannot be shown separately on the soil maps because of the scale used in mapping. The inclusions of contrasting soils are mentioned in the map unit descriptions. A few inclusions may not have been observed and consequently are not mentioned in the descriptions, especially where the soil pattern was so complex that it was impractical to make enough observations to identify all of the kinds of soils on the landscape.

The presence of inclusions in a map unit in no way diminishes the usefulness or accuracy of the soil data. The objective of soil mapping is not to delineate pure taxonomic classes of soils but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but onsite investigation is needed to plan for intensive uses in small areas.

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under the heading "Use and Management of the Soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Grenada silt loam, 3 to 8 percent slopes, eroded, is a phase of the Grenada series.

Some map units are made up of two or more major soils. These map units are called soil complexes.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Foley-Bonn complex, 0 to 1 percent slopes, is an example.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

Soil Descriptions

AmA—Amagon silt loam, 0 to 1 percent slopes

Setting

Landform position: Low terraces

Typical Profile

Surface layer:
0 to 3 inches—brown silt loam with redoximorphic features

Subsurface layer:
3 to 15 inches—light brownish gray silt loam with redoximorphic features

Subsoil:
15 to 41 inches—grayish brown silty clay loam with redoximorphic features
41 to 53 inches—grayish brown loam with redoximorphic features
53 to 61 inches—light brownish gray fine sandy loam with redoximorphic features
61 to 80 inches—light grayish brown loam with redoximorphic features

Inclusions

- Dundee soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow
Available water capacity: High
Depth to seasonal high water table: 0.5 to 1 foot
Shrink-swell potential: Moderate
Hazard of flooding: None
Surface runoff: Negligible to low
Soil reaction: Very strongly acid to slightly acid in the surface and subsurface layers and upper part of the subsoil; strongly acid to slightly alkaline in the lower part of the subsoil
Parent material: Loamy alluvium

Land Use

Major Uses: Most acreage of this soil is cultivated; other areas are used for pasture or woodland

Cropland

Land capability subclass: IIIw
Suitability: Moderately suited
Adapted crops: Soybeans, rice, and grain sorghum
Management concerns:
- Seasonal wetness
- Excessive surface water

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Moderately suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Seasonal wetness
- Excessive surface water

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 8W
Suitability: Moderately suited
Adapted species: Cherrybark oak, water oak, and willow oak
Management concerns:
- Seasonal wetness restricts equipment use
- Moderate seedling mortality
- Severe windthrow hazard

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Wetness
- Slow permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Wetness
- Low strength

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

AsB—Askew fine sandy loam, 1 to 3 percent slopes

Setting

Landform position: Low terraces

Typical Profile

Surface layer:
0 to 5 inches—brown fine sandy loam

Subsoil:
5 to 15 inches—dark yellowish brown, silty clay loam with redoximorphic features
15 to 26 inches—yellowish brown loam with redoximorphic features
26 to 41 inches—pale brown fine sandy loam with redoximorphic features

Substratum:
41 to 72 inches—brown sandy loam

Inclusions

- Dubbs soils
- Dundee soils
- Teksob soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: High
Depth to seasonal high water table: 2 to 3 feet
Shrink-swell potential: Moderate
Surface runoff: Low to medium
Soil reaction: Strongly acid to slightly acid in the surface layer and upper part of the subsoil; very strongly acid to slightly acid in the lower part of the subsoil and substratum
Parent material: Loamy alluvium

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: IIe
Suitability: Well suited
Adapted crops: Soybeans, corn, cotton, grain sorghum, and winter small grains
Management concerns:
- Seasonal wetness
- Moderate erosion hazard

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 8W
Suitability: Moderately suited
Adapted species: Cherrybark oak, eastern cottonwood, willow oak, and sweetgum
Management concerns:
- Moderate windthrow hazard

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Moderate
Limitations:
- Wetness
- Shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Moderate
Limitations:
- Wetness
- Shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Moderate
Limitations:
- Low strength
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

BsA—Teksob loam, 0 to 1 percent slopes

Setting

Landform position: Terraces

Typical Profile

Surface layer:
0 to 5 inches—brown loam

Subsurface layer:
5 to 10 inches—dark brown loam

Subsoil:
10 to 20 inches—brown and dark yellowish brown loam
20 to 27 inches—brown clay loam with redoximorphic features
27 to 40 inches—strong brown sandy clay loam with redoximorphic features
40 to 51 inches—strong brown fine sandy loam

Substratum:
51 to 65 inches—strong brown fine sand
65 to 80 inches—dark yellowish brown fine sand with redoximorphic features

Inclusions

- Askew soils
- Dubbs soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate to high
Depth to seasonal high water table: >6 feet
Shrink-swell potential: Low
Surface runoff: Negligible to low
Soil reaction: Strongly acid to neutral throughout
Parent material: Loamy alluvium

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability class: I
Suitability: Well suited
Adapted crops: Corn, soybeans, grain sorghum, cotton, and winter small grains
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Improved bermudagrass, common bermudagrass, and tall fescue
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 9A
Suitability: Well suited
Adapted species: Cherrybark oak, sweetgum, and willow oak
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Slight
Limitations:
- No significant limitations

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Slight
Limitations:
- No significant limitations

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Moderate
Limitations:
- Moderate permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Slight
Limitations:
- No significant limitations

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

BsB—Teksob loam, 1 to 3 percent slopes

Setting

Landform position: Terraces

Typical Profile

Surface layer:
0 to 5 inches—brown loam

Subsurface layer:
5 to 10 inches—dark brown loam

Subsoil:
10 to 20 inches—brown and dark yellowish brown loam
20 to 27 inches—brown clay loam with redoximorphic features
27 to 40 inches—strong brown sandy clay loam with redoximorphic features
40 to 51 inches—strong brown fine sandy loam

Substratum:
51 to 65 inches—strong brown fine sand
65 to 80 inches—dark yellowish brown fine sand with redoximorphic features

Inclusions

- Askew soils
- Dubbs soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate to high
Depth to seasonal high water table: >6 feet
Shrink-swell potential: Low
Surface runoff: Low to medium
Soil reaction: Strongly acid to neutral throughout
Parent material: Loamy alluvium

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: IIe
Suitability: Well suited
Adapted crops: Corn, soybeans, grain sorghum, cotton, and winter small grains
Management concerns:
- Moderate erosion hazard

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Improved bermudagrass, common bermudagrass, and tall fescue
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 9A
Suitability: Well suited
Adapted species: Cherrybark oak, sweetgum, and willow oak
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Slight
Limitations:
- No significant limitations

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Slight
Limitations:
- No significant limitations

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Moderate
Limitations:
- Moderate permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Slight

Limitations:
• No significant limitations
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

BsC—Teksob loam, 3 to 8 percent slopes

Setting

Landform position: Terraces

Typical Profile

Surface layer:
0 to 5 inches—brown loam

Subsurface layer:
5 to 10 inches—dark brown loam

Subsoil:
10 to 20 inches—brown and dark yellowish brown loam
20 to 27 inches—brown clay loam with redoximorphic features
27 to 40 inches—strong brown sandy clay loam with redoximorphic features
40 to 51 inches—strong brown fine sandy loam

Substratum:
51 to 65 inches—strong brown fine sand
65 to 80 inches—dark yellowish brown fine sand with redoximorphic features

Inclusions

• Dubbs soils
• Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate to high
Depth to seasonal high water table: >6 feet
Shrink-swell potential: Low
Surface runoff: Medium
Soil reaction: Strongly acid to neutral throughout
Parent material: Loamy alluvium

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: IIIe
Suitability: Moderately suited
Adapted crops: Corn, soybeans, grain sorghum, cotton, and winter small grains
Management concerns:
• Severe erosion hazard
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
• No significant limitations
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 9A
Suitability: Well suited
Adapted species: Cherrybark oak, sweetgum, and willow oak
Management concerns:
• No significant limitations
Management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Slight
Limitations:
• No significant limitations
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Moderate
Limitations:
• Slope
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Moderate
Limitations:
• Moderate permeability

Corrective measures:
• See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Slight
Limitations:
• No significant limitations
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

BuC—Bulltown loamy fine sand, 1 to 8 percent slopes

Setting

Landform position: Dunes on terraces

Typical Profile

Surface layer:
0 to 4 inches—dark yellowish brown loamy fine sand

Subsurface layers:
4 to 8 inches—brown loamy fine sand
8 to 16 inches—dark yellowish brown loamy fine sand
16 to 26 inches—dark yellowish brown and yellowish brown loamy fine sand

Subsoil:
26 to 37 inches—brown fine sandy loam
37 to 51 inches—brown sandy clay loam
51 to 69 inches—brown fine sandy loam

Substratum:
69 to 80 inches—brown and yellowish brown loamy fine sand

Inclusions

• Patterson soils
• Tuckerman soils
• Wiville soils
• Small depressional areas subject to flooding

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: Low
Depth to seasonal high water table: >6 feet
Shrink-swell potential: Low
Surface runoff: Very low to low
Soil reaction: Very strongly acid to slightly acid throughout
Parent material: Sandy, eolian deposits

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: IIIs
Suitability: Moderately suited
Adapted crops: Winter small grains, grain sorghum, soybeans, cotton, watermelons, and cantaloupes
Management concerns:
• Low available water capacity
• Droughtiness
• Moderate wind erosion hazard
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
• Droughtiness
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 9S
Suitability: Well suited
Adapted species: Cherrybark oak, eastern cottonwood, and shortleaf pine
Management concerns:
• Deep, sandy surface restricts equipment use
• Moderate seedling mortality
Management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings
Limitation rating: Slight
Limitations:
• No significant limitations
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Moderate
Limitations:
• Slope

Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
• Poor filter
Corrective measures:
• See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Slight
Limitations:
• No significant limitations
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

CaA—Calhoun silt loam, 0 to 1 percent slopes

Setting

Landform position: Loess covered terraces

Typical Profile

Surface layer:
0 to 6 inches—dark grayish brown silt loam

Subsurface layer:
6 to 16 inches—gray silt loam with redoximorphic features

Subsoil:
16 to 31 inches—light brownish gray silty clay loam and light gray silt with redoximorphic features
31 to 54 inches—grayish brown silty clay loam and light gray silt with redoximorphic features
54 to 72 inches—light brownish gray silt loam with redoximorphic features

Inclusions

• Calloway soils
• Henry soils
• Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow
Available water capacity: High
Depth to seasonal high water table: 0 to 1 foot
Shrink-swell potential: Moderate
Hazard of flooding: None
Surface runoff: Negligible to low
Soil reaction: Strongly acid or moderately acid in the surface layer, except where limed or affected by irrigation water; very strongly acid to moderately acid in the subsurface layer and lower part of the subsoil; very strongly acid or strongly acid in the upper part of the subsoil
Parent material: Loess

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: IIIw
Suitability: Moderately suited
Adapted crops: Soybeans, grain sorghum, and rice
Management concerns:
• Excess surface water
• Wetness
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Moderately suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
• Wetness
• Excess surface water
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 8W
Suitability: Moderately suited
Adapted species: Cherrybark oak, willow oak, sweetgum, and loblolly pine
Management concerns:
• Equipment use is restricted due to wetness
• Moderate seedling mortality
• Severe windthrow hazard
Management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe

Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Wetness
- Slow permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Low strength
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

ClA—Calloway silt loam, 0 to 1 percent slopes

Setting

Landform position: Loess covered terraces

Typical Profile

Surface layer:
0 to 5 inches—brown silt loam

Subsurface layer:
5 to 8 inches—brown silt loam with redoximorphic features

Subsoil:
8 to 18 inches—yellowish brown silt loam with redoximorphic features
18 to 23 inches—gray silt loam with redoximorphic features
23 to 32 inches—compact and brittle, grayish brown silty clay loam with redoximorphic features
32 to 42 inches—compact and brittle, grayish brown silty clay loam with redoximorphic features
42 to 60 inches—compact and brittle, yellowish brown silt loam with redoximorphic features
60 to 72 inches—compact and brittle, grayish brown and yellowish brown silt loam with redoximorphic features

Inclusions

- Calhoun soils
- Grenada soils
- Henry soils
- Tichnor soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Slow
Available water capacity: Moderate
Depth to seasonal high water table: 1 foot to 2 feet
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Negligible to low
Soil reaction: Very strongly acid to moderately acid throughout
Parent material: Loess

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: IIw
Suitability: Well suited
Adapted crops: Soybeans, grain sorghum, and rice
Management concerns:
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 8W
Suitability: Moderately suited
Adapted species: Cherrybark oak, water oak, loblolly pine, and sweetgum
Management concerns:
• Moderate limitation for equipment use due to seasonal wetness
• Moderate windthrow hazard
Management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
• Wetness
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
• Wetness
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
• Slow permeability
• Wetness
Corrective measures:
• See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
• Low strength
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

CIB—Calloway silt loam, 1 to 3 percent slopes

Setting

Landform position: Loess covered terraces

Typical Profile

Surface layer:
0 to 5 inches—brown silt loam

Subsurface layer:
5 to 8 inches—brown silt loam with redoximorphic features

Subsoil:
8 to 18 inches—yellowish brown silt loam with redoximorphic features
18 to 23 inches—gray silt loam with redoximorphic features
23 to 32 inches—compact and brittle, grayish brown silty clay loam with redoximorphic features
32 to 42 inches—compact and brittle, grayish brown silty clay loam with redoximorphic features
42 to 60 inches—compact and brittle, yellowish brown silt loam with redoximorphic features
60 to 72 inches—compact and brittle, grayish brown and yellowish brown silt loam with redoximorphic features

Inclusions

• Calhoun soils
• Grenada soils
• Henry soils
• Tichnor soils
• Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Slow
Available water capacity: Moderate
Depth to seasonal high water table: 1 foot to 2 feet
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Low to medium
Soil reaction: Very strongly acid to moderately acid throughout
Parent material: Loess

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: IIe
Suitability: Well suited
Adapted crops: Soybeans, grain sorghum, and winter small grains

Management concerns:
- Moderate erosion hazard
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 8W
Suitability: Moderately suited
Adapted species: Cherrybark oak, water oak, loblolly pine, and sweetgum
Management concerns:
- Moderate limitation for equipment use due to seasonal wetness
- Moderate windthrow hazard

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Slow permeability
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Low strength

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

DbA—Dubbs silt loam, 0 to 1 percent slopes

Setting

Landform position: Natural levees and stream terraces

Typical Profile

Surface layer:
0 to 5 inches—brown silt loam

Subsoil:
5 to 12 inches—brown silt loam
12 to 34 inches—brown silty clay loam
34 to 50 inches—brown clay loam
50 to 60 inches—dark yellowish brown loam with redoximorphic features

Substratum:
60 to 72 inches—brown fine sandy loam with redoximorphic features

Inclusions

- Dundee soils
- Teksob soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to seasonal high water table: >6 feet
Shrink-swell potential: Moderate
Hazard of flooding: None
Surface runoff: Negligible to low
Soil reaction: Very strongly acid to moderately acid throughout
Parent material: Loamy alluvium

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability class: I
Suitability: Well suited
Adapted crops: Soybeans, corn, cotton, grain sorghum, and winter small grains
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 10A
Suitability: Well suited
Adapted species: Cherrybark oak, green ash, sweetgum, eastern cottonwood, and willow oak
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Moderate
Limitations:
- Moderate shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Moderate
Limitations:
- Moderate shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Moderate
Limitations:
- Moderate permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Low strength

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

DbB—Dubbs silt loam, 1 to 3 percent slopes

Setting

Landform position: Natural levees and stream terraces

Typical Profile

Surface layer:
0 to 5 inches—brown silt loam

Subsoil:
5 to 12 inches—brown silt loam
12 to 34 inches—brown silty clay loam
34 to 50 inches—brown clay loam
50 to 60 inches—dark yellowish brown loam with redoximorphic features

Substratum:
60 to 72 inches—brown fine sandy loam with redoximorphic features

Inclusions

- Askew soils
- Teksob soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to seasonal high water table: >6 feet
Shrink-swell potential: Moderate
Hazard of flooding: None
Surface runoff: Low to medium

Soil reaction: Very strongly acid to moderately acid throughout
Parent material: Loamy alluvium

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: IIe
Suitability: Well suited
Adapted crops: Soybeans, corn, cotton, grain sorghum, and winter small grains
Management concerns:
• Moderate erosion hazard
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
• No significant limitations
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 10A
Suitability: Well suited
Adapted species: Cherrybark oak, green ash, sweetgum, eastern cottonwood, and willow oak
Management concerns:
• No significant limitations
Management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Moderate
Limitations:
• Moderate shrink-swell potential
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Moderate
Limitations:
• Moderate shrink-swell potential
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Moderate
Limitations:
• Moderate permeability
Corrective measures:
• See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
• Low strength
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

DbC—Dubbs silt loam, 3 to 8 percent slopes

Setting

Landform position: Natural levees and stream terraces

Typical Profile

Surface layer:
0 to 5 inches—brown silt loam

Subsoil:
5 to 12 inches—brown silt loam
12 to 34 inches—brown silty clay loam
34 to 50 inches—brown clay loam
50 to 60 inches—dark yellowish brown loam with redoximorphic features

Substratum:
60 to 72 inches—brown fine sandy loam with redoximorphic features

Inclusions

• Askew soils
• Teksob soils
• Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to seasonal high water table: >6 feet
Shrink-swell potential: Moderate

Hazard of flooding: None
Surface runoff: Medium
Soil reaction: Very strongly acid to moderately acid throughout
Parent material: Loamy alluvium

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: IIIe
Suitability: Moderately suited
Adapted crops: Soybeans, corn, cotton, grain sorghum, and winter small grains
Management concerns:
- Moderate erosion hazard

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 10A
Suitability: Well suited
Adapted species: Cherrybark oak, green ash, sweetgum, eastern cottonwood, and willow oak
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Moderate
Limitations:
- Moderate shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Moderate
Limitations:
- Moderate shrink-swell potential
- Slope

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Moderate
Limitations:
- Moderate permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Low strength

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

DuA—Dundee silt loam, 0 to 1 percent slopes

Setting

Landform position: Natural levees and low terraces

Typical Profile

Surface layer:
0 to 6 inches—brown silt loam

Subsoil:
6 to 14 inches—brown silty clay loam with redoximorphic features
14 to 32 inches—grayish brown silty clay loam with redoximorphic features
32 to 49 inches—light brownish gray silt loam with redoximorphic features

Substratum:
49 to 72 inches—gray loam with redoximorphic features

Inclusions

- Amagon soils
- Askew soils
- Dubbs soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Somewhat poorly drained

Permeability: Moderately slow
Available water capacity: High
Depth to seasonal high water table: 1 foot to 2 feet
Shrink-swell potential: Moderate
Hazard of flooding: None
Surface runoff: Negligible to low
Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil; very strongly acid to neutral in the substratum
Parent material: Loamy alluvium

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: IIw
Suitability: Well suited
Adapted crops: Soybeans, rice, grain sorghum, and winter small grains
Management concerns:
• Seasonal wetness
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
• Seasonal wetness
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 8W
Suitability: Well suited
Adapted species: Cherrybark oak, eastern cottonwood, and water oak
Management concerns:
• Moderate limitation for equipment use due to seasonal wetness
• Moderate windthrow hazard
Management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
• Wetness
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
• Wetness
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
• Wetness
• Moderately slow permeability
Corrective measures:
• See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
• Low strength
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

FbA—Foley-Bonn complex, 0 to 1 percent slopes

Setting

Landform position: Terraces

Composition

Foley and similar soils: 60 percent
Bonn and similar soils: 30 percent
Minor soils: 10 percent

Typical Profile

Foley

Surface layer:
0 to 4 inches—dark grayish brown silt loam with redoximorphic features

Subsurface layers:
4 to 9 inches—light brownish gray silt loam with redoximorphic features
9 to 20 inches—gray silt loam with redoximorphic features

Subsoil:
20 to 26 inches—gray silt loam and light gray silt with redoximorphic features
26 to 52 inches—gray silty clay loam and light gray silt with redoximorphic features
52 to 67 inches—gray silt loam with redoximorphic features
67 to 80 inches—light brownish gray with redoximorphic features

Bonn

Surface layer:
0 to 5 inches—grayish brown silt loam

Subsurface layers:
5 to 9 inches—light brownish gray silt loam with redoximorphic features
9 to 15 inches—light gray silt loam and gray silty clay loam with redoximorphic features

Subsoil:
15 to 23 inches—gray silty clay loam and light gray silt loam with redoximorphic features
23 to 46 inches—grayish brown silty clay loam with redoximorphic features
46 to 55 inches—light brownish gray silty clay loam with redoximorphic features
55 to 72 inches—light brownish gray silt loam with redoximorphic features

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Very slow
Available water capacity: Moderate
Depth to seasonal high water table: 0 to 1 foot
Shrink-swell potential: Moderate
Hazard of flooding: None
Surface runoff: Low to medium
Soil reaction: Foley—very strongly acid to moderately acid in the surface layer, very strongly acid to neutral in the subsurface layers, strongly acid to strongly alkaline in the upper part of the subsoil, slightly acid to strongly alkaline in the lower part of the subsoil; Bonn—strongly acid to neutral in the surface layer, strongly acid to moderately alkaline in the subsurface layers, moderately acid to strongly alkaline in the upper part of the subsoil, slightly alkaline to strongly alkaline in the lower part of the subsoil
Parent material: Loamy material high in exchangeable sodium

Inclusions

- Amagon soils
- Calhoun soils
- Lafe soils
- Overcup soils
- Small depressional areas subject to flooding and/or ponding for long durations

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: Foley—IIIW; Bonn—IVS
Suitability: Foley—moderately suited; Bonn—poorly suited
Adapted crops: Rice, soybeans, and grain sorghum
Management concerns:
- Seasonal wetness
- Excessive surface water
- Bonn—high sodium content near the surface
- Bonn—droughtiness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Moderately suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Seasonal wetness
- Bonn—droughtiness and high sodium content near the surface

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: Foley—6W; Bonn—3T
Suitability: Foley—moderately suited; Bonn—poorly suited
Adapted species: Foley—cherrybark oak, sweetgum, and water oak; Bonn—eastern redcedar, post oak, and water oak
Management concerns:
- Seasonal wetness restricts equipment use
- Severe seedling mortality
- Severe windthrow hazard

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Wetness
- Very slow permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Low strength
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

FdA—Forestdale silty clay loam, 0 to 1 percent slopes, frequently flooded

Setting

Landform position: Low terraces and depressions

Typical Profile

Surface layer:
0 to 6 inches—grayish brown silty clay loam

Subsoil:
6 to 17 inches—light gray silty clay loam with redoximorphic features
17 to 28 inches—light gray silty clay with redoximorphic features
28 to 58 inches—grayish brown silty clay with redoximorphic features
58 to 72 inches—light brownish gray silty clay loam with redoximorphic features

Inclusions

- Jackport soils
- Overcup soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Very slow
Available water capacity: Moderate
Depth to seasonal high water table: 0 to 1 foot
Shrink-swell potential: High
Hazard of flooding: Frequent
Surface runoff: Low to medium
Soil reaction: Very strongly acid to moderately acid in the surface layer and upper part of the subsoil; very strongly acid to slightly alkaline in the lower part of the subsoil
Parent material: Clayey and silty alluvium

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: IVw
Suitability: Poorly suited
Adapted crops: Soybeans and other short growing season crops
Management concerns:
- Frequent flooding
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Moderately suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Seasonal wetness
- Frequent flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 8W
Suitability: Moderately suited
Adapted species: Cherrybark oak, willow oak, eastern cottonwood, and sweetgum
Management concerns:
- Equipment use is restricted due to wetness and flooding
- Severe windthrow hazard
- Severe seedling mortality

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Flooding
- Wetness
- Shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Flooding
- Wetness
- Shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Wetness
- Flooding
- Very slow permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Low strength
- Shrink-swell potential
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

GrB—Grenada silt loam, 1 to 3 percent slopes

Setting

Landform position: Loess covered terraces

Typical Profile

Surface layer:
0 to 4 inches—brown silt loam

Subsoil:
4 to 22 inches—yellowish brown silt loam
22 to 24 inches—gray silt loam with redoximorphic features
24 to 50 inches—compact and brittle, yellowish brown silty clay loam and light gray silt with redoximorphic features
50 to 72 inches—compact and brittle, yellowish brown silt loam with redoximorphic features

Inclusions

- Calhoun soils
- Calloway soils
- Henry soils
- Hillemann soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and slow in the fragipan
Available water capacity: Moderate
Depth to seasonal high water table: 1.5 to 2.5 feet below the surface
Hazard of flooding: None
Shrink-swell potential: Low
Surface runoff: Low to medium
Soil reaction: Very strongly acid to moderately acid in the surface layer and upper part of the subsoil; strongly acid to slightly acid in the lower part of the subsoil
Parent material: Loess

Land Use

Major Uses: Most areas are cultivated; other areas are in woodland or pastureland

Cropland

Land capability subclass: IIe
Suitability: Well suited
Adapted crops: Soybeans, grain sorghum, rice, and winter small grains
Management concerns:
• Moderate erosion hazard
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
• No significant limitations
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 8W
Suitability: Moderately suited
Adapted species: Cherrybark oak, sweetgum, southern red oak, loblolly pine, and shortleaf pine
Management concerns:
• Moderate windthrow hazard
Management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Moderate
Limitations:
• Wetness
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Moderate
Limitations:
• Wetness
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
• Wetness
• Slow permeability
Corrective measures:
• See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
• Low strength
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

GrC—Grenada silt loam, 3 to 8 percent slopes, eroded

Setting

Landform position: Escarpments between loess covered terraces and alluvial terraces

Typical Profile

Surface layer:
0 to 4 inches—brown silt loam

Subsoil:
4 to 22 inches—yellowish brown silt loam
22 to 24 inches—gray silt loam with redoximorphic features
24 to 50 inches—compact and brittle, yellowish brown silty clay loam and light gray silt with redoximorphic features
50 to 72 inches—compact and brittle, yellowish brown silt loam with redoximorphic features

Inclusions

• Calhoun soils
• Calloway soils
• Henry soils
• Severely eroded areas and non-eroded areas

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and slow in the fragipan
Available water capacity: Moderate
Depth to seasonal high water table: 1.5 to 2.5 feet below the surface
Hazard of flooding: None
Shrink-swell potential: Low
Surface runoff: Medium to high

Soil reaction: Very strongly acid to moderately acid in the surface layer and upper part of the subsoil; strongly acid to slightly acid in the lower part of the subsoil
Parent material: Loess

Land Use

Major Uses: Most areas are in pasture; a few areas are cultivated or in woodland

Cropland

Land capability subclass: IIIe
Suitability: Moderately suited
Adapted crops: Soybeans, grain sorghum, winter small grains, and other sown crops
Management concerns:
- Severe erosion hazard

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 8W
Suitability: Moderately suited
Adapted species: Cherrybark oak, sweetgum, southern red oak, loblolly pine, and shortleaf pine
Management concerns:
- Moderate windthrow hazard

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Moderate
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Moderate
Limitations:
- Wetness
- Slope

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Wetness
- Slow permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Low strength
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

GuB—Grubbs silt loam, 1 to 3 percent slopes

Setting

Landform position: Edge of terraces and escarpments between lower terraces

Typical Profile

Surface layer:
0 to 5 inches—brown silt loam

Subsoil:
5 to 12 inches—yellowish red silty clay loam with redoximorphic features
12 to 20 inches—red silty clay with redoximorphic features
20 to 26 inches—yellowish brown silty clay with redoximorphic features
26 to 40 inches—light brownish gray silty clay loam with redoximorphic features
40 to 52 inches—grayish brown silt loam with redoximorphic features
52 to 76 inches—brown silt loam with redoximorphic features

Inclusions

- Hillemann soils
- Jackport soils

- Overcup soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Very slow
Available water capacity: High
Depth to seasonal high water table: 1.5 to 2.5 feet
Shrink-swell potential: High
Hazard of flooding: None
Surface runoff: Medium to high
Soil reaction: Moderately acid or slightly acid in the surface layer; very strongly acid to moderately acid in the upper part of the subsoil; strongly acid to neutral in the lower part of the subsoil
Parent material: Loess or loess-like material with low sand content

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland or pasture

Cropland

Land capability subclass: IIIe
Suitability: Moderately suited
Adapted crops: Soybeans, winter small grains, and other drilled crops
Management concerns:
- Moderate erosion hazard

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Moderately suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Erosion hazard

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 6W
Suitability: Moderately suited
Adapted species: Cherrybark oak, sweetgum, and water oak
Management concerns:
- Severe windthrow hazard

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Wetness
- Very slow permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Shrink-swell potential
- Low strength

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

GuC—Grubbs silt loam, 3 to 8 percent slopes, eroded

Setting

Landform position: Escarpments between terraces

Typical Profile

Surface layer:
0 to 4 inches—brown silt loam

Subsoil:
4 to 12 inches—yellowish red silty clay loam with redoximorphic features

12 to 20 inches—red silty clay with redoximorphic features
20 to 26 inches—yellowish brown silty clay with redoximorphic features
26 to 40 inches—light brownish gray silty clay loam with redoximorphic features
40 to 52 inches—grayish brown silt loam with redoximorphic features
52 to 76 inches—brown silt loam with redoximorphic features

Inclusions

- Jackport soils
- Overcup soils
- Severely eroded areas and non-eroded areas

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Very slow
Available water capacity: High
Depth to seasonal high water table: 1.5 to 2.5 feet
Shrink-swell potential: High
Hazard of flooding: None
Surface runoff: Medium to high
Soil reaction: Moderately acid or slightly acid in the surface layer; very strongly acid to moderately acid in the upper part of the subsoil; strongly acid to neutral in the lower part of the subsoil
Parent material: Loess or loess-like material with low sand content

Land Use

Major Uses: Most areas are in pasture; a few areas are cultivated or in woodland

Cropland

Land capability subclass: IVe
Suitability: Poorly suited
Adapted crops: Winter small grains and other drilled crops
Management concerns:
- Very severe erosion hazard

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Moderately suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 6W
Suitability: Moderately suited
Adapted species: Cherrybark oak, sweetgum, and water oak
Management concerns:
- Severe windthrow hazard

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Wetness
- Very slow permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Shrink-swell potential
- Low strength

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

HeA—Henry silt loam, 0 to 1 percent slopes

Setting

Landform position: Depressions on loess covered terraces

Typical Profile

Surface layer:
0 to 6 inches—grayish brown silt loam

Subsurface layer:
6 to 22 inches—light brownish gray silt loam with redoximorphic features

Subsoil:
22 to 46 inches—compact and brittle, grayish brown silty clay loam with redoximorphic features
46 to 60 inches—light brownish gray silty clay loam with redoximorphic features
60 to 72 inches—gray silt loam with redoximorphic features

Inclusions

- Calhoun soils
- Calloway soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow
Available water capacity: Moderate
Depth to seasonal high water table: 0.5 foot to 1.5 feet
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Negligible to low
Soil reaction: Very strongly acid or strongly acid in the surface and subsurface layers and upper part of the subsoil, except where limed or affected by irrigation water; strongly acid or moderately acid in the lower part of the subsoil
Parent material: Loess

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: IIIw
Suitability: Moderately suited
Adapted crops: Soybeans, grain sorghum, and rice
Management concerns:
- Excess surface water
- Wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Moderately suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Wetness
- Excess surface water

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 8W
Suitability: Moderately suited
Adapted species: Cherrybark oak, water oak, willow oak, and sweetgum
Management concerns:
- Equipment use is restricted due to wetness
- Severe seedling mortality
- Severe windthrow hazard

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Wetness
- Slow permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Wetness
- Low strength

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

HmA—Hillemann silt loam, 0 to 1 percent slopes

Setting

Landform position: Loess covered terraces

Typical Profile

Surface layer:
0 to 3 inches—grayish brown silt loam with redoximorphic features

Subsurface layer:
3 to 15 inches—gray silt loam with redoximorphic features

Subsoil:
15 to 23 inches—reddish brown and gray silty clay with redoximorphic features
23 to 28 inches—light brownish gray silty clay loam with redoximorphic features
28 to 40 inches—light brownish gray silt loam and light gray silt with redoximorphic features
40 to 57 inches—grayish brown silt loam and light gray silt with redoximorphic features
57 to 70 inches—light brownish gray silty clay loam and light gray silt with redoximorphic features
70 to 80 inches—gray silty clay loam with redoximorphic features

Inclusions

- Calhoun soils
- Calloway soils
- Grenada soils
- Grubbs soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Very slow
Available water capacity: Moderate
Depth to seasonal high water table: 1 foot to 2 feet
Shrink-swell potential: Moderate
Hazard of flooding: None
Surface runoff: Low to medium
Soil reaction: Strongly acid or moderately acid in the surface and subsurface layers, except where limed or affected by irrigation water; very strongly acid to moderately acid in the upper part of the subsoil; very strongly acid to moderately alkaline in the lower part of the subsoil
Parent material: Loess

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: IIw
Suitability: Well suited
Adapted crops: Rice, soybeans, winter small grains, and grain sorghum
Management concerns:
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 8W
Suitability: Moderately suited
Adapted species: Sweetgum, willow oak, loblolly pine, and water oak
Management concerns:
- Seasonal wetness restricts equipment use
- Moderate seedling mortality
- Moderate windthrow hazard

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Wetness
- Very slow permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Low strength

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

HmB—Hillemann silt loam, 1 to 3 percent slopes

Setting

Landform position: Loess covered terraces

Typical Profile

Surface layer:
0 to 3 inches—grayish brown silt loam with redoximorphic features

Subsurface layer:
3 to 15 inches—gray silt loam with redoximorphic features

Subsoil:
15 to 23 inches—reddish brown and gray silty clay with redoximorphic features
23 to 28 inches—light brownish gray silty clay loam with redoximorphic features
28 to 40 inches—light brownish gray silt loam and light gray silt with redoximorphic features
40 to 57 inches—grayish brown silt loam and light gray silt with redoximorphic features
57 to 70 inches—light brownish gray silty clay loam and light gray silt with redoximorphic features
70 to 80 inches—gray silty clay loam with redoximorphic features

Inclusions

- Calhoun soils
- Calloway soils
- Grenada soils
- Grubbs soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Very slow
Available water capacity: Moderate
Depth to seasonal high water table: 1 foot to 2 feet
Shrink-swell potential: Moderate
Hazard of flooding: None
Surface runoff: Medium
Soil reaction: Strongly acid or moderately acid in the surface and subsurface layers, except where limed or affected by irrigation water; very strongly acid to moderately acid in the upper part of the subsoil; very strongly acid to moderately alkaline in the lower part of the subsoil
Parent material: Loess

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland or pasture

Cropland

Land capability subclass: IIe
Suitability: Well suited
Adapted crops: Rice, soybeans, winter small grains, and grain sorghum
Management concerns:
- Moderate erosion hazard
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited

Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
• Seasonal wetness
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 8W
Suitability: Moderately suited
Adapted species: Sweetgum, willow oak, loblolly pine, and water oak
Management concerns:
• Seasonal wetness restricts equipment use
• Moderate seedling mortality
• Moderate windthrow hazard
Management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
• Wetness
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
• Wetness
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
• Wetness
• Very slow permeability
Corrective measures:
• See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
• Low strength
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

JpA—Jackport silty clay loam, 0 to 1 percent slopes

Setting

Landform position: Terraces

Typical Profile

Surface layer:
0 to 5 inches—dark grayish brown silty clay loam

Subsoil:
5 to 12 inches—grayish brown clay with redoximorphic features
12 to 29 inches—grayish brown clay with redoximorphic features
29 to 58 inches—grayish brown silty clay with redoximorphic features
58 to 72 inches—grayish brown silty clay loam with redoximorphic features

Inclusions

• Grubbs soils
• Overcup soils
• Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Very slow
Available water capacity: High
Depth to seasonal high water table: 0 to 1 foot
Shrink-swell potential: Very high
Hazard of flooding: None
Surface runoff: Low to medium
Soil reaction: Very strongly acid to slightly acid in the surface layer; very strongly acid or strongly acid in the upper part of the subsoil; moderately acid to moderately alkaline in the lower part of the subsoil
Parent material: Clayey alluvium

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: IIIw
Suitability: Moderately suited
Adapted crops: Soybeans, grain sorghum, and rice
Management concerns:
• Seasonal wetness
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Moderately suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
• Seasonal wetness
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 8W
Suitability: Moderately suited
Adapted species: Cherrybark oak, willow oak, and sweetgum
Management concerns:
• Equipment use is restricted due to wetness
• Severe seedling mortality
• Severe windthrow hazard
Management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
• Wetness
• Shrink-swell potential
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
• Wetness
• Shrink-swell potential
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
• Very slow permeability
• Wetness
Corrective measures:
• See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
• Wetness
• Low strength
• Shrink-swell potential
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

KbA—Kobel silty clay loam, 0 to 1 percent slopes, rarely flooded

Setting

Landform position: Flood plains and backswamps

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown silty clay loam

Subsoil:
4 to 16 inches—dark gray clay with redoximorphic features
16 to 53 inches—gray clay with redoximorphic features
53 to 60 inches—gray silty clay loam with redoximorphic features

Substratum:
60 to 72 inches—gray clay loam with redoximorphic features

Inclusions

• Tipp soils
• Yancopin soils
• Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Very slow
Available water capacity: High
Depth to seasonal high water table: 0 to 1 foot
Shrink-swell potential: Very high
Hazard of flooding: Rare
Surface runoff: Low to medium
Soil reaction: Moderately acid to neutral in the surface layer; slightly acid to slightly alkaline in the subsoil; neutral to moderately alkaline in the substratum
Parent material: Clayey alluvium

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: IIIw
Suitability: Moderately suited
Adapted crops: Soybeans, grain sorghum, and rice
Management concerns:
- Excess surface water
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Moderately suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Seasonal wetness
- Excess surface water

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 7W
Suitability: Moderately suited
Adapted species: Cherrybark oak, green ash, American sycamore, eastern cottonwood, water hickory, and water oak
Management concerns:
- Equipment use is restricted due to wetness
- Severe windthrow hazard
- Seedling mortality

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Flooding
- Wetness
- Shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Flooding
- Wetness
- Shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Wetness
- Very slow permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Shrink-swell potential
- Low strength
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

KlA—Kobel silty clay loam, 0 to 1 percent slopes, frequently flooded

Setting

Landform position: Flood plains and backswamps

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown silty clay loam

Subsoil:
4 to 16 inches—dark gray clay with redoximorphic features
16 to 53 inches—gray clay with redoximorphic features
53 to 60 inches—gray silty clay loam with redoximorphic features

Substratum:
60 to 72 inches—gray clay loam with redoximorphic features

Inclusions

- Tipp soils
- Yancopin soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Very slow

Available water capacity: High
Depth to seasonal high water table: 0 to 1 foot
Shrink-swell potential: Very high
Hazard of flooding: Frequent
Surface runoff: Low to medium
Soil reaction: Moderately acid to neutral in the surface layer; slightly acid to slightly alkaline in the subsoil; neutral to moderately alkaline in the substratum
Parent material: Clayey alluvium

Land Use

Major Uses: Most areas are cultivated; other areas are in woodland or pasture

Cropland

Land capability subclass: IVw
Suitability: Poorly suited
Adapted crops: Soybeans or other short growing season crops
Management concerns:
- Excess surface water
- Seasonal wetness
- Frequent flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Moderately suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Seasonal wetness
- Frequent flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 6W
Suitability: Moderately suited
Adapted species: Cherrybark oak, green ash, American sycamore, eastern cottonwood, water hickory, and water oak
Management concerns:
- Equipment use is restricted due to wetness and flooding
- Severe windthrow hazard
- Severe seedling mortality

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Flooding
- Wetness
- Shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Flooding
- Wetness
- Shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Wetness
- Very slow permeability
- Flooding

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Shrink-swell potential
- Low strength
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

KoA—Kobel silty clay loam, 0 to 1 percent slopes, ponded

Setting

Landform position: Oxbows and backswamps

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown silty clay loam

Subsoil:
4 to 16 inches—dark gray clay with redoximorphic features
16 to 53 inches—gray clay with redoximorphic features
53 to 60 inches—gray silty clay loam with redoximorphic features

Substratum:
60 to 72 inches—gray clay loam with redoximorphic features

Inclusions

- Tuckerman soils
- Yancopin soils
- Small areas slightly higher in elevation subject to flooding and/or ponding for brief durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Very poorly drained
Permeability: Very slow
Available water capacity: High
Depth to seasonal high water table: 0 to 5 feet above the surface from December to September
Shrink-swell potential: Very high
Hazard of flooding: Frequent
Surface runoff: Negligible to low
Soil reaction: Moderately acid to neutral in the surface layer; slightly acid to slightly alkaline in the subsoil; neutral to moderately alkaline in the substratum
Parent material: Clayey alluvium

Land Use

Major Uses: Most areas are wooded and used for wildlife habitat

Cropland

Land capability subclass: VIw
Suitability: Not suited
Management concerns:
- Ponding for long durations
- Frequent flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Not suited
Management concerns:
- Ponding for long durations
- Frequent flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 3W
Suitability: Poorly suited
Adapted species: Baldcypress, water tupelo, and water hickory
Management concerns:
- Equipment use is restricted due to ponding for long durations
- Severe windthrow hazard
- Severe seedling mortality

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Flooding
- Ponding
- Shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Flooding
- Ponding
- Shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Ponding
- Very slow permeability
- Flooding

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Shrink-swell potential
- Low strength
- Ponding

Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

LfA—Lafe silt loam, 0 to 1 percent slopes

Setting

Landform position: Terraces

Typical Profile

Surface layer:
0 to 4 inches—dark grayish brown silt loam

Subsurface layer:
4 to 8 inches—light brownish gray silt loam with redoximorphic features

Subsoil:
8 to 22 inches—brown silty clay loam and gray silt loam with redoximorphic features
22 to 43 inches—pale brown silty clay loam with redoximorphic features
43 to 60 inches—grayish brown silty clay loam with redoximorphic features
60 to 72 inches—light brownish gray silt loam with redoximorphic features

Inclusions

• Bonn soils
• Foley soils
• Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Very slow
Available water capacity: Low
Depth to seasonal high water table: 1 foot to 2 feet
Shrink-swell potential: Moderate
Hazard of flooding: None
Surface runoff: Low to medium
Soil reaction: Strongly acid to slightly acid in the surface and subsurface layers; slightly alkaline to strongly alkaline in the subsoil
Parent material: Silty sediments derived from loess

Land Use

Major Uses: Most areas are cultivated; other areas are in woodland or idle

Cropland

Land capability subclass: VIs
Suitability: Poorly suited
Adapted crops: Soybeans, rice, and grain sorghum
Management concerns:
• Droughtiness
• High concentration of sodium and magnesium within 12 inches of the surface
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Poorly suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
• Droughtiness
• High concentration of sodium and magnesium within 12 inches of the surface
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 2T
Suitability: Poorly suited
Adapted species: Post oak, water oak, and eastern redcedar
Management concerns:
• Equipment use is restricted due to wetness
• Severe seedling mortality
• Severe windthrow hazard
Management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
• Wetness
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
• Wetness
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe

Limitations:
- Wetness
- Very slow permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Low strength

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Lv—Levee

Setting

Landform position: Flood plains of the White River

Typical Profile

This map unit consists of a constructed levee and adjacent berm along the St. Francis River. Soil material used in the construction of the levee and adjacent berm is very variable. Soil colors range from gray to brown, and textures range from silt loam to clay. Considerable mixing of the soil material has occurred.

Land Use

Major Uses: Most of the levee and berm are clear of trees. There is a good stand of fescue and native species of grasses in most areas. In some areas the levee is used for pasture and hayland. The berm at the base of the levee is often used for cropland, but may also be used for pasture and hayland.

McA—McCrory fine sandy loam, 0 to 1 percent slopes

Setting

Landform position: Terraces

Typical Profile

Surface layer:
0 to 3 inches—brown fine sandy loam

Subsurface layer:
3 to 15 inches—grayish brown fine sandy loam with redoximorphic features

Subsoil:
15 to 20 inches—light brownish gray and grayish brown fine sandy loam and gray silt loam with redoximorphic features
20 to 28 inches—light brownish gray fine sandy loam with redoximorphic features
28 to 36 inches—grayish brown fine sandy loam with redoximorphic features
36 to 51 inches—grayish brown sandy clay loam with redoximorphic features
51 to 65 inches—grayish brown fine sandy loam with redoximorphic features
65 to 70 inches—grayish brown sandy clay loam with redoximorphic features

Substratum:
70 to 98 inches—yellowish brown, pale brown, and brown fine sand with redoximorphic features

Inclusions

- Bonn soils
- Foley soils
- Tuckerman soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderately slow
Available water capacity: Low to moderate
Depth to seasonal high water table: 0 to 1 foot
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Negligible to low
Soil reaction: Strongly acid to slightly acid in the surface and subsurface layers; neutral to strongly alkaline in the subsoil and substratum
Parent material: Loamy alluvium

Land Use

Major Uses: Most areas are cultivated; other areas are in woodland and pasture

Cropland

Land capability subclass: IIIw
Suitability: Moderately suited
Adapted crops: Soybeans, grain sorghum, and rice
Management concerns:
- Excessive surface water
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Moderately suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Seasonal wetness
- Excess surface water

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 6W
Suitability: Moderately suited
Adapted species: Water oak, willow oak, and sweetgum
Management concerns:
- Equipment use is restricted due to wetness
- Severe seedling mortality
- Severe windthrow hazard

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Wetness
- Moderately slow permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

OaB—Oaklimeter silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform position: Flood plains and low stream terraces

Typical Profile

Surface layer:
0 to 6 inches—brown silt loam

Subsoil:
6 to 30 inches—brown silt loam with redoximorphic features
30 to 60 inches—yellowish brown and light brownish gray loam with redoximorphic features
60 to 72 inches—light brownish gray silt loam with redoximorphic features

Inclusions

- Tichnor soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: High
Depth to seasonal high water table: 2 to 3 feet
Shrink-swell potential: Low
Hazard of flooding: Occasional
Surface runoff: Negligible to medium
Soil reaction: Very strongly acid or strongly acid throughout, except for surface layers which have been limed
Parent material: Silty alluvium

Land Use

Major Uses: Most areas are cultivated or utilized for pasture and hayland; a few areas are in woodland

Cropland

Land capability subclass: IIw
Suitability: Well suited
Adapted crops: Soybeans, cotton, winter small grains, and grain sorghum

Management concerns:
- Occasional flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Occasional flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 10W
Suitability: Well suited
Adapted species: Cherrybark oak, green ash, loblolly pine, and sweetgum
Management concerns:
- Moderate seedling mortality
- Moderate windthrow hazard

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Flooding

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Flooding

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Flooding
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Flooding
- Low strength

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

OvA—Overcup silt loam, 0 to 1 percent slopes

Setting

Landform position: Terraces

Typical Profile

Surface layer:
0 to 4 inches—dark grayish brown silt loam with redoximorphic features

Subsurface layer:
4 to 8 inches—light gray silt loam with redoximorphic features

Subsoil:
8 to 22 inches—grayish brown silty clay with redoximorphic features
22 to 44 inches—dark grayish brown silty clay with redoximorphic features
44 to 61 inches—grayish brown silty clay with redoximorphic features
61 to 72 inches—light brownish gray silty clay loam with redoximorphic features

Inclusions

- Grubbs soils
- Jackport soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Very slow
Available water capacity: High
Depth to seasonal high water table: 0 to 1 foot
Shrink-swell potential: Very high
Hazard of flooding: None
Surface runoff: Low to medium

Soil reaction: Strongly acid or moderately acid in the surface and subsurface layers; very strongly acid to slightly acid in the upper part of the subsoil; strongly acid to moderately alkaline in the lower part of the subsoil
Parent material: Alluvium

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: IIIw
Suitability: Moderately suited
Adapted crops: Rice, soybeans, and grain sorghum
Management concerns:
- Excess surface water
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Moderately suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Seasonal wetness
- Excess surface water

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 8W
Suitability: Moderately suited
Adapted species: Cherrybark oak, green ash, water oak, willow oak, and sweetgum
Management concerns:
- Equipment use limitation due to wetness
- Severe seedling mortality
- Severe windthrow hazard

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Wetness
- Shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Wetness
- Shrink-swell potential

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Very slow permeability
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Shrink-swell potential
- Low strength
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

PaB—Patterson fine sandy loam, 0 to 2 percent slopes

Setting

Landform position: Low terraces and depressions

Typical Profile

Surface layer:
0 to 6 inches—dark brown fine sandy loam
6 to 10 inches—brown fine sandy loam with redoximorphic features

Subsurface layer:
10 to 33 inches—grayish brown fine sandy loam with redoximorphic features

Subsoil:
33 to 53 inches—dark gray sandy clay loam with redoximorphic features
53 to 67 inches—dark gray fine sandy loam with redoximorphic features

Substratum:
67 to 90 inches—brown loamy fine sand with redoximorphic features

Inclusions

- Bulltown soils
- Tuckerman soils
- Wiville soil
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately rapid
Available water capacity: Moderate
Depth to seasonal high water table: 1 foot to 2 feet
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Negligible to low
Soil reaction: Very strongly acid to slightly acid in the surface layers; very strongly acid or strongly acid in the subsurface layers and subsoil; very strongly acid to neutral in the substratum
Parent material: Loamy alluvium

Land Use

Major Uses: Most areas are cultivated; other areas are in woodland or pasture

Cropland

Land capability subclass: IIw
Suitability: Well suited
Adapted crops: Soybeans, grain sorghum, and cotton
Management concerns:
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 9W
Suitability: Well suited
Adapted species: Cherrybark oak, sweetgum, water oak, and willow oak
Management concerns:
- Equipment use is restricted due to wetness
- Moderate windthrow hazard
- Moderate seedling mortality

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Wetness
- Poor filter

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Moderate
Limitations:
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

TaB—Taylorbay silt loam, 0 to 3 percent slopes, rarely flooded

Setting

Landform position: Flood plains of the White River

Typical Profile

Surface layer:
0 to 8 inches—very dark grayish brown silt loam

Subsurface layer:
8 to 25 inches—very dark grayish brown silt loam

Subsoil:
25 to 32 inches—brown silt loam with redoximorphic features
32 to 56 inches—dark yellowish brown silt loam with redoximorphic features

Substratum:
56 to 72 inches—brown silty clay loam with redoximorphic features

Inclusions

- Kobel soils
- Tipp soils
- Yancopin soils
- Small areas of soils which are sandy throughout
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to seasonal high water table: 4 to 6 feet
Shrink-swell potential: Moderate
Hazard of flooding: Rare
Surface runoff: Negligible to low
Soil reaction: Slightly acid to slightly alkaline throughout
Parent material: Silty alluvium

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability class: I
Suitability: Well suited
Adapted crops: Corn, soybeans, grain sorghum, and winter small grains
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 10A
Suitability: Well suited
Adapted species: Cherrybark oak, loblolly pine, southern red oak, white oak, and black walnut
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Flooding may occur under unusual weather conditions

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Flooding may occur under unusual weather conditions

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Moderately slow permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Low strength

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

TbB—Taylorbay silt loam, 0 to 3 percent slopes, frequently flooded

Setting

Landform position: Flood plains of the White River

Typical Profile

Surface layer:
0 to 8 inches—very dark grayish brown silt loam

Subsurface layer:
8 to 25 inches—very dark grayish brown silt loam

Subsoil:
25 to 32 inches—dark brown silt loam with redoximorphic features
32 to 56 inches—dark yellowish brown silt loam with redoximorphic features

Substratum:
56 to 72 inches—brown silty clay loam with redoximorphic features

Inclusions

- Kobel soils
- Tipp soils
- Yancopin soils
- Small areas of soils which are sandy throughout
- Small depressional areas subject to ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Depth to seasonal high water table: 4 to 6 feet
Shrink-swell potential: Moderate
Hazard of flooding: Frequent
Surface runoff: Negligible to low
Soil reaction: Slightly acid to slightly alkaline throughout
Parent material: Loamy alluvium

Land Use

Major Uses: Many areas are cultivated; other areas are in woodland or pasture

Cropland

Land capability subclass: IVw
Suitability: Poorly suited
Adapted crops: Soybeans or other short growing season crops
Management concerns:
- Frequent flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Moderately suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Frequent flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 10W
Suitability: Well suited
Adapted species: Cherrybark oak, loblolly pine, white oak, southern red oak, and black walnut
Management concerns:
- Severe seedling mortality

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Flooding

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Flooding

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Flooding
- Moderately slow permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe

Limitations:
- Flooding
- Low strength

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

TcA—Tichnor silt loam, 0 to 1 percent slopes, frequently flooded

Setting

Landform position: Flood plains

Typical Profile

Surface layer:
0 to 6 inches—dark grayish brown silt loam

Subsurface layers:
6 to 17 inches—gray silt loam with redoximorphic features
17 to 27 inches—light brownish gray silt loam with redoximorphic features

Subsoil:
27 to 42 inches—gray silty clay loam with redoximorphic features
42 to 60 inches—grayish brown silty clay loam with redoximorphic features
60 to 72 inches—gray silt loam with redoximorphic features

Inclusions

- Oaklimeter soils
- Small depressional areas subject to ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderately slow
Available water capacity: High
Depth to seasonal high water table: 0 to 1 foot
Shrink-swell potential: Moderate
Hazard of flooding: Frequent
Surface runoff: Negligible to low
Soil reaction: Strongly acid or moderately acid in the surface layer, except in areas which have been limed; very strongly acid to moderately acid in the subsurface layers; very strongly acid or strongly acid in the subsoil
Parent material: Silty alluvium

Land Use

Major Uses: Many areas are cultivated; other areas are in woodland or pasture

Cropland

Land capability subclass: IVw
Suitability: Poorly suited
Adapted crops: Soybeans or other short growing season crops
Management concerns:
- Frequent flooding
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Moderately suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Flooding
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 10W
Suitability: Well suited
Adapted species: Cherrybark oak, sweetgum, and eastern cottonwood
Management concerns:
- Equipment use is limited due to flooding and wetness
- Severe windthrow hazard
- Severe seedling mortality

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Flooding
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Flooding
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Flooding
- Wetness
- Moderately slow permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Low strength
- Wetness
- Flooding

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

TiB—Tipp silty clay loam, 0 to 3 percent slopes, rarely flooded

Setting

Landform position: Flood plains of the White River

Typical Profile

Surface layer:
0 to 5 inches—dark brown silty clay loam

Subsurface layer:
5 to 10 inches—very dark grayish brown silty clay loam

Subsoil:
10 to 21 inches—very dark grayish brown silty clay with redoximorphic features
21 to 34 inches—dark brown silty clay with redoximorphic features
34 to 47 inches—very dark grayish brown silty clay with redoximorphic features
47 to 60 inches—grayish brown silty clay with redoximorphic features
60 to 77 inches—brown silty clay loam with redoximorphic features

Inclusions

- Taylorbay soils
- Yancopin soils
- Small depressional areas subject to flooding and/or ponding for long durations
- Small areas of soils which are sandy throughout

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Slow
Available water capacity: High
Shrink-swell potential: Moderate
Depth to seasonal high water table: 2 to 3 feet
Hazard of flooding: Rare
Surface runoff: Low to medium
Soil reaction: Moderately acid to neutral in the surface and subsurface layers and upper part of the subsoil; moderately acid to slightly alkaline in the lower part of the subsoil
Parent material: Loamy alluvium

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: IIw
Suitability: Well suited
Adapted crops: Rice, soybeans, corn, and grain sorghum
Management concerns:
- Wetness is a moderate restriction

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Seasonal wetness is a moderate restriction

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 9W

Suitability: Well suited
Adapted species: Cherrybark oak, black walnut, southern red oak, loblolly pine, and water oak
Management concerns:
• Moderate windthrow hazard
Management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
• Flooding may occur under unusual weather conditions
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
• Flooding may occur under unusual weather conditions
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
• Wetness
• Slow permeability
Corrective measures:
• See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
• Low strength
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

TpB—Tipp silty clay loam, 0 to 3 percent slopes, frequently flooded

Setting

Landform position: Flood plains of the White River

Typical Profile

Surface layer:
0 to 5 inches—dark brown silty clay loam

Subsurface layer:
5 to 10 inches—very dark grayish brown silty clay loam

Subsoil:
10 to 21 inches—very dark grayish brown silty clay with redoximorphic features
21 to 34 inches—dark brown silty clay with redoximorphic features
34 to 47 inches—very dark grayish brown silty clay with redoximorphic features
47 to 60 inches—grayish brown silty clay loam with redoximorphic features
60 to 77 inches—brown silty clay loam with redoximorphic features

Inclusions

• Taylorbay soils
• Yancopin soils
• Small depressional areas subject to ponding for long durations
• Small areas of soils that are sandy throughout

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Slow
Available water capacity: High
Shrink-swell potential: Moderate
Depth to seasonal high water table: 2 to 3 feet
Hazard of flooding: Frequent
Surface runoff: Low to medium
Soil reaction: Moderately acid to neutral in the surface and subsurface layers and upper part of the subsoil; moderately acid to slightly alkaline in the lower part of the subsoil
Parent material: Loamy alluvium

Land Use

Major Uses: Most areas are cultivated; a few areas are in woodland

Cropland

Land capability subclass: IVw
Suitability: Poorly suited
Adapted crops: Soybeans or other short growing season crops
Management concerns:
• Frequent flooding
• Seasonal wetness

Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Moderately suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
• Seasonal wetness
• Flooding
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 9W
Suitability: Well suited
Adapted species: Cherrybark oak, black walnut, southern red oak, loblolly pine, and water oak
Management concerns:
• Severe seedling mortality
• Moderate windthrow hazard
Management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
• Flooding
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
• Flooding
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
• Flooding
• Wetness
• Moderately slow permeability
Corrective measures:
• See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
• Low strength
• Flooding
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

TrA—Tuckerman loam, 0 to 1 percent slopes, frequently flooded

Setting

Landform position: Flood plains and low stream terraces

Typical Profile

Surface layer:
0 to 7 inches—dark grayish brown loam

Subsurface layers:
7 to 12 inches—light brownish gray fine sandy loam with redoximorphic features
12 to 18 inches—light brownish gray and light gray fine sandy loam with redoximorphic features

Subsoil:
18 to 25 inches—light brownish loam with redoximorphic features
25 to 36 inches—grayish brown clay loam with redoximorphic features
36 to 48 inches—light brownish gray loam with redoximorphic features
48 to 57 inches—grayish brown fine sandy loam with redoximorphic features

Substratum:
57 to 68 inches—grayish brown loamy fine sand with redoximorphic features
68 to 77 inches—grayish brown loam with redoximorphic features
77 to 86 inches—dark yellowish brown sand with redoximorphic features

Inclusions

• Askew soils
• McCrory soils
• Patterson soils
• Small depressional areas subject to ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Poorly drained

Permeability: Moderately slow
Available water capacity: Moderate
Depth to seasonal high water table: 0 to 1 foot
Shrink-swell potential: Low
Hazard of flooding: Frequent
Surface runoff: Negligible to low
Soil reaction: Very strongly acid to moderately acid in the surface and subsurface layers and subsoil; strongly acid to moderately alkaline in the substratum
Parent material: Loamy alluvium

Land Use

Major Uses: Many areas are cultivated; other areas are in woodland or pasture

Cropland

Land capability subclass: IVw
Suitability: Poorly suited
Adapted crops: Soybeans or other short growing season crops
Management concerns:
- Seasonal wetness
- Frequent flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Poorly suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Seasonal wetness
- Frequent flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 6W
Suitability: Moderately suited
Adapted species: Water oak, eastern cottonwood, sweetgum, Nuttall oak, and willow oak
Management concerns:
- Equipment use is restricted due to wetness and flooding
- Severe windthrow hazard
- Severe seedling mortality

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Flooding
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Flooding
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Flooding
- Wetness
- Moderately slow permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Wetness
- Flooding

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

TuA—Tuckerman silty clay loam, 0 to 1 percent slopes, frequently flooded

Setting

Landform position: Flood plains and low stream terraces

Typical Profile

Surface layer:
0 to 6 inches—dark grayish brown silty clay loam

Subsurface layers:
6 to 12 inches—light brownish gray fine sandy loam with redoximorphic features
12 to 18 inches—light brownish gray and light gray loam with redoximorphic features

Subsoil:
18 to 25 inches—light brownish loam with redoximorphic features
25 to 36 inches—grayish brown clay loam with redoximorphic features
36 to 48 inches—light brownish gray loam with redoximorphic features
48 to 57 inches—grayish brown fine sandy loam with redoximorphic features

Substratum:
57 to 68 inches—grayish brown loamy fine sand with redoximorphic features
68 to 77 inches—grayish brown loam with redoximorphic features
77 to 86 inches—dark yellowish brown sand with redoximorphic features

Inclusions

- Askew soils
- McCrory soils
- Patterson soils
- Small depressional areas subject to ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderately slow
Available water capacity: Moderate
Depth to seasonal high water table: 0 to 1 foot
Shrink-swell potential: Moderate
Hazard of flooding: Frequent
Surface runoff: Negligible to low
Soil reaction: Very strongly acid to moderately acid in the surface and subsurface layers and subsoil; strongly acid to moderately alkaline in the substratum
Parent material: Loamy alluvium

Land Use

Major Uses: Many areas are cultivated; other areas are in woodland or pasture

Cropland

Land capability subclass: IVw
Suitability: Poorly suited
Adapted crops: Soybeans or other short growing season crops
Management concerns:
- Seasonal wetness
- Frequent flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Poorly suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Seasonal wetness
- Frequent flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 6W
Suitability: Moderately suited
Adapted species: Water oak, eastern cottonwood, sweetgum, cherrybark oak, Nuttall oak, and willow oak
Management concerns:
- Equipment use is restricted due to wetness and flooding
- Severe windthrow hazard
- Severe seedling mortality

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Flooding
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Flooding
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe

Limitations:
- Flooding
- Wetness
- Moderately slow permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Wetness
- Flooding

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

W—Water

WvA—Wiville fine sandy loam, 0 to 1 percent slopes

Setting

Landform position: Sand dunes on stream terraces

Typical Profile

Surface layer:
0 to 5 inches—dark yellowish brown fine sandy loam

Subsurface layer:
5 to 11 inches—dark yellowish brown fine sandy loam

Subsoil:
11 to 27 inches—brown fine sandy loam
27 to 56 inches—brown sandy clay loam
56 to 64 inches—dark yellowish brown fine sandy loam

Substratum:
64 to 80 inches—yellowish brown fine sand

Inclusions

- Bulltown soils
- Patterson soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: >6 feet
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Negligible to low
Soil reaction: Strongly acid to neutral in the surface and subsurface layers and upper part of the subsoil; strongly acid to slightly acid in the lower part of the subsoil; strongly acid to neutral in the substratum
Parent material: Loamy eolian deposits

Land Use

Major Uses: Most areas are cultivated; other areas are in woodland and pasture

Cropland

Land capability class: I
Suitability: Well suited
Adapted crops: Corn, soybeans, cotton, winter small grains, and truck crops
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 9A
Suitability: Well suited
Adapted species: Cherrybark oak, sweetgum, green ash, eastern cottonwood, and shortleaf pine
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Slight
Limitations:
- No significant limitations

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Slight
Limitations:
- No significant limitations

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Moderate
Limitations:
- Moderate permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Slight
Limitations:
- No significant limitations

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

WvB—Wiville fine sandy loam, 1 to 3 percent slopes

Setting

Landform position: Sand dunes on stream terraces

Typical Profile

Surface layer:
0 to 5 inches—dark yellowish brown fine sandy loam

Subsurface layer:
5 to 11 inches—dark yellowish brown fine sandy loam

Subsoil:
11 to 27 inches—brown fine sandy loam
27 to 56 inches—brown sandy clay loam
56 to 64 inches—dark yellowish brown fine sandy loam

Substratum:
64 to 80 inches—yellowish brown fine sand

Inclusions

- Bulltown soils
- Patterson soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: >6 feet
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Negligible to low
Soil reaction: Strongly acid to neutral in the surface and subsurface layers and upper part of the subsoil; strongly acid to slightly acid in the subsoil; strongly acid to neutral in the substratum
Parent material: Loamy eolian deposits

Land Use

Major Uses: Most areas are cultivated; other areas are in woodland and pasture

Cropland

Land capability subclass: IIe
Suitability: Well suited
Adapted crops: Corn, soybeans, cotton, winter small grains, and truck crops
Management concerns:
- Moderate erosion hazard

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 9A
Suitability: Well suited
Adapted species: Cherrybark oak, sweetgum, green ash, eastern cottonwood, and shortleaf pine
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Slight
Limitations:
- No significant limitations

Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Slight
Limitations:
• No significant limitations
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Moderate
Limitations:
• Moderate permeability
Corrective measures:
• See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Slight
Limitations:
• No significant limitations
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

WvC—Wiville fine sandy loam, 3 to 8 percent slopes

Setting

Landform position: Side slopes of sand dunes on stream terraces

Typical Profile

Surface layer:
0 to 5 inches—dark yellowish brown fine sandy loam

Subsurface layer:
5 to 11 inches—dark yellowish brown fine sandy loam

Subsoil:
11 to 27 inches—brown fine sandy loam
27 to 56 inches—brown sandy clay loam
56 to 64 inches—dark yellowish brown fine sandy loam

Substratum:
64 to 80 inches—yellowish brown fine sand

Inclusions

• Bulltown soils
• Patterson soils
• Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: >6 feet
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Low to medium
Soil reaction: Strongly acid to neutral in the surface and subsurface layers and upper part of the subsoil; strongly acid to slightly acid in the subsoil; strongly acid to neutral in the substratum
Parent material: Loamy eolian deposits

Land Use

Major Uses: Most areas are cultivated; other areas are in woodland and pasture

Cropland

Land capability subclass: IIIe
Suitability: Moderately suited
Adapted crops: Corn, soybeans, cotton, winter small grains, and truck crops
Management concerns:
• Severe erosion hazard
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
• No significant limitations
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 9A
Suitability: Well suited
Adapted species: Cherrybark oak, sweetgum, green ash, eastern redcedar, and shortleaf pine
Management concerns:
• No significant limitations
Management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Slight
Limitations:
- No significant limitations

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Moderate
Limitations:
- Slope

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Moderate
Limitations:
- Moderate permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Slight
Limitations:
- No significant limitations

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

YaB—Yancopin silty clay loam, 0 to 3 percent slopes, rarely flooded

Setting

Landform position: Flood plains

Typical Profile

Surface layer:
0 to 4 inches—dark grayish brown silty clay loam

Subsoil:
4 to 56 inches—dark grayish brown silty clay loam with redoximorphic features
56 to 76 inches—light brownish gray silty clay loam with redoximorphic features

Inclusions

- Kobel soils
- Taylorbay soils
- Tipp soils
- Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Available water capacity: High
Depth to seasonal high water table: 1 foot to 2 feet
Shrink-swell potential: Moderate
Hazard of flooding: Rare
Surface runoff: Low to medium
Soil reaction: Moderately acid to neutral throughout
Parent material: Silty alluvium

Land Use

Major Uses: Most areas are cultivated; other areas are in woodland or pasture

Cropland

Land capability subclass: IIw
Suitability: Well suited
Adapted crops: Rice, soybeans, and grain sorghum
Management concerns:
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Well suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 8W
Suitability: Moderately suited
Adapted species: Cherrybark oak, green ash, eastern cottonwood, Nuttall oak, and pecan
Management concerns:
- Moderate seedling mortality
- Moderate windthrow hazard
- Equipment use may be restricted due to seasonal wetness

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
• Flooding may occur under unusual weather conditions
• Wetness
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
• Flooding may occur under unusual weather conditions
• Wetness
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
• Wetness
• Moderately slow permeability
Corrective measures:
• See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
• Low strength
Corrective measures:
• See Use and Management of the Soils, Engineering, Building Site Development Section

YpB—Yancopin silty clay loam, 0 to 3 percent slopes, frequently flooded

Setting

Landform position: Flood plains

Typical Profile

Surface layer:
0 to 4 inches—dark grayish brown silty clay loam
Subsoil:
4 to 56 inches—dark grayish brown silty clay loam with redoximorphic features
56 to 76 inches—light brownish gray silty clay loam with redoximorphic features

Inclusions

• Kobel soils
• Taylorbay soils
• Tipp soils
• Small depressional areas subject to flooding and/or ponding for long durations

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Available water capacity: High
Depth to seasonal high water table: 1 foot to 2 feet
Shrink-swell potential: Moderate
Hazard of flooding: Frequent
Surface runoff: Low to medium
Soil reaction: Moderately acid to neutral throughout
Parent material: Silty alluvium

Land Use

Major Uses: Many areas are cultivated; other areas are in woodland or pasture

Cropland

Land capability subclass: IVw
Suitability: Poorly suited
Adapted crops: Soybeans or other short growing season crops
Management concerns:
• Seasonal wetness
• Frequent flooding
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Pasture and Hayland

Suitability: Moderately suited
Adapted plants: Common bermudagrass, improved bermudagrass, and tall fescue
Management concerns:
• Seasonal wetness
• Frequent flooding
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Woodland

Woodland ordination symbol: 8W
Suitability: Moderately suited
Adapted species: Cherrybark oak, green ash, eastern cottonwood, water hickory, pecan, and water oak
Management concerns:
- Severe seedling mortality
- Moderate windthrow hazard
- Equipment use may be restricted due to seasonal wetness and/or flooding

Management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Urban Uses

Dwellings

Limitation rating: Severe
Limitations:
- Flooding
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Small Commercial Buildings

Limitation rating: Severe
Limitations:
- Flooding
- Wetness

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Septic Tank Absorption Fields

Limitation rating: Severe
Limitations:
- Flooding
- Wetness
- Moderately slow permeability

Corrective measures:
- See Use and Management of the Soils, Engineering, Sanitary Facilities Section

Local Roads and Streets

Limitation rating: Severe
Limitations:
- Low strength
- Flooding

Corrective measures:
- See Use and Management of the Soils, Engineering, Building Site Development Section

Prime Farmland

In this section, prime farmland is defined, and the soils in Woodruff County that are considered prime farmland are listed.

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, State, and Federal levels, as well as individuals, must encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to food, feed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. The soils need only to be treated and managed by acceptable farming methods. The moisture supply must be adequate, and the growing season must be sufficiently long. Prime farmland soils produce the highest yields with minimal expenditure of energy and economic resources. Farming these soils results in the least damage to the environment.

Prime farmland soils may presently be used as cropland, pasture, or woodland or for other purposes. They are used for food or fiber or are available for these uses. Urban or built-up land, public land, and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water-control structures. Public land is land not available for farming in National forests, National parks, military reservations, and State parks.

Prime farmland soils usually receive an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The acidity or alkalinity level of the soils is acceptable. The soils have few or no rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not frequently flooded during the growing season. Slopes typically range from 0 to 3 percent, but may range to 8 percent.

The following map units are considered prime farmland in Woodruff County. The location of each map unit is shown on the detailed soil maps at the back of this publication. The extent of each unit is given in table 4. The soil qualities that affect use and management are described in the section "Detailed Soil Map Units." This list does not constitute a recommendation for a particular land use.

Some soils that have a high water table and all soils that are frequently flooded during the growing season qualify as prime farmland only in areas where these limitations have been overcome by drainage measures or flood control. If applicable, the need for these measures is indicated in parentheses after the map unit name in the following list. Onsite evaluation is necessary to determine if the limitations have been overcome by corrective measures.

The soils identified as prime farmland in Woodruff County are:

AmA	Amagon silt loam, 0 to 1 percent slopes (where drained)
AsB	Askew fine sandy loam, 1 to 3 percent slopes
BsA	Teksob loam, 0 to 1 percent slopes
BsB	Teksob loam, 1 to 3 percent slopes
BsC	Teksob loam, 3 to 8 percent slopes
CaA	Calhoun silt loam, 0 to 1 percent slopes (where drained)
CIA	Calloway silt loam, 0 to 1 percent slopes
CIB	Calloway silt loam, 1 to 3 percent slopes
DbA	Dubbs silt loam, 0 to 1 percent slopes
DbB	Dubbs silt loam, 1 to 3 percent slopes
DuA	Dundee silt loam, 0 to 1 percent slopes
GrB	Grenada silt loam, 1 to 3 percent slopes
GuB	Grubbs silt loam, 1 to 3 percent slopes
HeA	Henry silt loam, 0 to 1 percent slopes (where drained)
JpA	Jackport silty clay loam, 0 to 1 percent slopes (where drained)

KbA	Kobel silty clay loam, 0 to 1 percent slopes, rarely flooded (where drained)
OaB	Oaklimeter slit loam, 0 to 2 percent slopes, occasionally flooded
OvA	Overcup silt loam, 0 to 1 percent slopes (where drained)
PaB	Patterson fine sandy loam, 0 to 2 percent slopes
TaB	Taylorbay silt loam, 0 to 3 percent slopes, rarely flooded
TiB	Tipp silty clay loam, 0 to 3 percent slopes, rarely flooded
WvA	Wiville fine sandy loam, 0 to 1 percent slopes
WvB	Wiville fine sandy loam, 1 to 3 percent slopes
WvC	Wiville fine sandy loam, 3 to 8 percent slopes
YaB	Yancopin silty clay loam, 0 to 3 percent slopes, rarely flooded

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern that is in harmony with nature.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Natural Resources Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management concerns for the different soil types within Woodruff County include: seasonal wetness, excessive surface water, occasional and frequent flooding, moderate to very severe erosion hazard, droughtiness, and high concentration of sodium near the surface. A partial list of management measures to reduce the impact of the above concerns and obtain the indicated yields include: installing surface drainage; erosion control measures, such as conservation tillage, contour farming, and terraces where needed; proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

For yields of irrigated crops, it is assumed that the

irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small.

The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops listed or other crops not shown in the table.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for use as cropland. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode, but they have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main hazard is the risk of erosion unless a close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

There are no subclasses in class I because the soils of this class have few limitations. The soils in class V are subject to little or no erosion, but they have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation. Class V contains only the subclasses indicated by *w, s,* or *c*.

The capability classification of each map unit is given in the section "Detailed Soil Map Units."

Woodland Management and Productivity

Soils vary in their ability to produce trees. Available water capacity and depth of the root zone have major effects on tree growth. Fertility and texture also influence tree growth. Elevation, aspect, and climate determine the kinds of trees that can grow on a site. Elevation and aspect are of particular importance in mountainous areas.

This soil survey can be used by woodland managers planning ways to increase the productivity of forest land. Some soils respond better to applications of fertilizer than others, and some are more susceptible to landslides and erosion after roads are built and timber is harvested. Some soils require special reforestation efforts. In the section "Detailed Soil Map Units," the description of each map unit in the survey area suitable for timber includes information about productivity, limitations in harvesting timber, and management concerns in producing timber. The common forest understory plants also are listed. Table 6 summarizes this forestry information and rates

the soils for a number of factors to be considered in management. *Slight, moderate,* and *severe* are used to indicate the degree of the major soil limitations to be considered in forest management.

The table lists the *ordination symbol* for each soil. The first part of the ordination symbol, a number, indicates the potential productivity of a soil for the indicator species in cubic meters per hectare. The larger the number, the greater the potential productivity. Potential productivity is based on the site index and the point where mean annual increment is the greatest.

The second part of the ordination symbol, a letter, indicates the major kind of soil limitation affecting use and management. The letter *R* indicates a soil that has a significant limitation because of steepness of slope. The letter *X* indicates that a soil has restrictions because of stones or rocks on the surface. The letter *W* indicates a soil in which excessive water, either seasonal or year-round, causes a significant limitation. The letter *T* indicates a soil that has, within the root zone, excessive alkalinity or acidity, sodium salts, or other toxic substances that limit the development of desirable trees. The letter *D* indicates a soil that has a limitation because of a restricted rooting depth, such as a shallow soil that is underlain by hard bedrock, a hardpan, or other layers that restrict roots. The letter *C* indicates a soil that has a limitation because of the kind or amount of clay in the upper part of the profile. The letter *S* indicates a dry, sandy soil. The letter *F* indicates a soil that has a large amount of coarse fragments. The letter *A* indicates a soil having no significant limitations that affect forest use and management. If a soil has more than one limitation, the priority is as follows: R, X, W, T, D, C, S, and F.

Ratings of the *erosion hazard* indicate the probability that damage may occur if site preparation or harvesting activities expose the soil. The risk is *slight* if no particular preventive measures are needed under ordinary conditions; *moderate* if erosion-control measures are needed for particular silvicultural activities; and *severe* if special precautions are needed to control erosion for most silvicultural activities. Ratings of moderate or severe indicate the need for construction of higher standard roads, additional maintenance of roads, additional care in planning harvesting and reforestation activities, and the use of special equipment.

Ratings of *equipment limitation* indicate limits on the use of forest management equipment, year-round or seasonal, because of such soil characteristics as slope, wetness, stoniness, and susceptibility of the surface layer to compaction. As slope gradient and length increase, it becomes more difficult to use wheeled equipment. On the steeper slopes, tracked equipment is needed. On the steepest slopes, even tracked equipment cannot be operated and more sophisticated systems are needed. The rating is *slight* if equipment use is restricted by wetness for less than 2 months and if special equipment is not needed. The rating is *moderate* if slopes are so steep that wheeled equipment cannot be operated safely across the slope, if wetness restricts equipment use from 2 to 6 months per year, if stoniness restricts the use of ground-based equipment, or if special equipment is needed to prevent or minimize compaction. The rating is *severe* if slopes are so steep that tracked equipment cannot be operated safely across the slope, if wetness restricts equipment use for more than 6 months per year, if stoniness restricts the use of ground-based equipment, or if special equipment is needed to prevent or minimize compaction. Ratings of moderate or severe indicate a need to choose the best suited equipment and to carefully plan the timing of harvesting and other management activities.

Ratings of *seedling mortality* refer to the probability of the death of naturally occurring or properly planted seedlings of good stock in periods of normal rainfall, as influenced by kinds of soil or topographic features. Seedling mortality is caused primarily by too much water or too little water. The factors used in rating a soil for seedling mortality are texture of the surface layer, depth to a seasonal high water table and the length of the periods when the water table is high, rock fragments in the surface layer, rooting depth, and the aspect of the slope. The mortality rate generally is highest on soils that have a sandy or clayey surface layer. The risk is *slight* if, after site preparation, expected mortality is less than 25 percent; *moderate* if expected mortality is between 25 and 50 percent; and *severe* if expected mortality exceeds 50 percent. Ratings of moderate or severe indicate that it may be necessary to use containerized or larger than usual planting stock or to make special site preparations, such as bedding, furrowing, installing a surface drainage system, and providing artificial shade for seedlings. Reinforcement planting is often needed if the risk is moderate or severe.

Ratings of *windthrow hazard* indicate the likelihood that trees will be uprooted by the wind. A restricted rooting depth is the main reason for windthrow. The rooting depth can be restricted by a high water table, a fragipan, or bedrock or by a combination of such factors as wetness, texture, structure, and depth. The risk is *slight* if strong winds cause trees to break but do not uproot them; *moderate* if strong winds cause an occasional tree to be blown over and many trees to break; and *severe* if moderate or strong winds commonly blow trees over. Ratings of moderate or

severe indicate that care is needed in thinning or that the stand should not be thinned at all. Special equipment may be needed to prevent damage to shallow root systems in partial cutting operations. A plan for the periodic removal of windthrown trees and the maintenance of a road and trail systems may be needed.

The *potential productivity* of *common trees* on a soil is expressed as a *site index* and a *volume* number. Common trees are listed in the order of their observed general occurrence. Generally, only two or three tree species dominate. The first tree listed for each soil is the indicator species for that soil. An indicator species is a tree that is common in the area and that is generally the most productive on a given soil.

The *site index* is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height, in feet, that trees attain in a specified number of years. This index applies to fully stocked, even-aged, unmanaged stands.

The *productivity class* represents an expected volume produced by the most important trees, expressed in cubic meters per hectare per year. Cubic meters per hectare per year can be converted to cubic feet per acre per year by multiplying by 14.3. Cubic feet per acre per year can then be converted to board feet by multiplying by a factor of about 5. For example, a productivity class of 7 means the soil can be expected to produce approximately 100 cubic feet per acre per year at the point where mean annual increment culminates, or about 500 board feet per acre per year.

Trees to plant are those that are used for reforestation or, under suitable conditions, natural regeneration. They are suited to the soils and can produce a commercial wood crop. The desired product, topographic position (such as a low, wet area), and personal preference are three factors among many that can influence the choice of trees for use in reforestation.

Recreation

In table 7, the soils of the survey area are rated according to the limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In the table, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or a combination of these measures.

The information in the table can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 9 and interpretations for dwellings without basements and for local roads and streets in table 8.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have gentle slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes, stones, or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have

moderate slopes and few or no stones or boulders on the surface.

Wildlife Habitat

Paul Brady, biologist, Natural Resources Conservation Service, helped to prepare this section.

Woodruff County has about 306,800 acres of cropland comprising about 81 percent of the county. About half of this cropland (152,000 acres) has been in soybeans in recent years, with rice (55,000 acres) and wheat (53,000) as other major crops. Milo, corn, and cotton are grown on most of the other cropland.

About 48,000 acres in the county are forested, mainly bottomland hardwoods along the major streams and in scattered tracts.

Only about 3,000 acres are in pasture or hayland, most of which is bermudagrass, with some clover, fescue, and annual lespedeza.

Major plant groups and species important to wildlife in Woodruff County include oaks, hickories, hackberry, sugarberry, dogwoods, pines, plums, hawthorns, blackberry, elderberry, viburnums, peppervine, sumacs, Virginia creeper, greenbrier, honeysuckle, bluestems, clover, annual lespedeza, panicums, partridge pea, common ragweed, tickclover, and vetches.

Some of the most productive wildlife habitats in the county are where bottomland hardwoods are connected by brushy edges to well managed crop fields. Such areas and other perennial habitats in the county provide homes for white-tailed deer, wild turkey, squirrels, bobwhite quail, raccoons, coyotes, opossum, foxes, rabbits, owls, hawks, numerous nongame birds, small mammals, reptiles, and other wildlife.

The new and still expanding Cache River National Wildlife Refuge is managed by the U.S. Fish and Wildlife Service. It presently covers about 10,530 acres in Woodruff County. These areas provide some high quality habitats and public hunting for deer, turkey, ducks, squirrels, quail, raccoons, and other wildlife.

The Rex Hancock-Black Swamp Wildlife Management Area, which includes nearly 4,000 acres in the county, is managed by the Arkansas Game and Fish Commission. This area provides public hunting mainly for deer, ducks, squirrels, trapping for furbearers, and habitat for numerous other game and nongame species.

Other lowland habitats, including swamps and areas in and around streams and lakes in the county, also support a wide variety of waterfowl and furbearers, such as beaver, muskrat, mink, raccoon, skunk, bobcat, coyote, fox, and opossum.

About 7,300 acres of erosive cropland in the county have been planted to pines, oaks, grasses, and legumes as part of the National Conservation Reserve Program. These plantings have developed perennial wildlife habitats and timber resources of high quality while conserving thousands of tons of topsoil. This saving of topsoil, so valuable in its own right, also keeps the soil from polluting nearby streams, lakes, and ponds—a tremendous benefit to the physical, chemical, and biological health of these waters and their aquatic life.

Fishery resources and sport fishing areas in Woodruff County include more than 2,000 acres of lakes and 165 miles of streams. Major lakes are Horseshoe Lake, just south of Augusta; White Lake; and Seven Mile Lake. Major streams are the White River, Cache River, Bayou DeView, and Taylor Bay. These lakes and streams and scattered farm ponds and reservoirs provide habitats and fishing for largemouth bass, crappies, channel catfish, flathead catfish, bluegill sunfish, redear sunfish, and other species.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 8 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm, dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrinking and swelling, and organic layers can cause the movement of footings. Depth to a high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, depth to a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic-supporting capacity.

Sanitary Facilities

Table 9 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and

limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

The table also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and that good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, depth to a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

The table gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, depth to a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. Ease of excavation and revegetation should be considered.

The ratings in the table are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, depth to a water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick

enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 10 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet and have a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In the table, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and releases a variety of plant nutrients as it decomposes.

Water Management

Table 11 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives the restrictive features that affect each soil for drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 12 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20, or higher, for the poorest.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The

sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Table 13 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate, or component, consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence the shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$-bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of movement of water through the soil when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage in each major soil layer is stated in inches of water per inch of soil. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6

percent. *Very high*, more than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year. These estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur over a sustained period without affecting crop productivity. The rate is expressed in tons per acre per year.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 14 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils are assigned to one of four groups. They are grouped according to the infiltration of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary covering of the soil surface by flowing water, is caused by overflowing streams, by runoff from adjacent slopes, or by inflow from high tides. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding. Standing water in swamps and marshes or in a closed depression is considered ponding.

The table gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency generally is expressed as *none, rare, occasional,* or *frequent. None* means that flooding is not probable. *Rare* means that flooding is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year). *Occasional* means that flooding occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year). *Frequent* means that flooding occurs often under normal weather conditions (the chance of flooding is more than a 50 percent in any year). *Common* is used when the occasional and frequent classes are grouped for certain purposes. Duration is expressed as *very brief* (less than 2 days), *brief* (2 to 7 days), *long* (7 days to 1 month), and *very long* (more than 1 month). The time of year that floods are most likely to occur is expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information on flooding is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered is local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The estimates

are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in the table are the depth to the seasonal high water table; the kind of water table, that is, *perched, artesian*, or *apparent*; and the months of the year that the water table commonly is highest. A water table that is seasonally high for less than 1 month is not indicated in the table.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. An *artesian* water table is under hydrostatic head, generally below an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. "More than 6.0" indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low, moderate*, or *high*. It is based on soil texture, acidity, and the amount of sulfates in the saturation extract.

Physical and Chemical Analyses of Selected Soils

The results of physical analysis of several typical pedons in the survey area are given in table 15 and the results of chemical analysis in table 16. The data are for soils sampled at carefully selected sites. The pedons are typical of the series and are described in the section "Soil Series and Their Morphology." Soil samples were analyzed by the Soil Characterization Laboratory, Arkansas Agricultural Experiment Station.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or on laboratory measurements. Table 17 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders, primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalf (*Ud*, meaning humid, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalf*, the suborder of the Alfisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, activity class, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, active, thermic Typic Hapludalfs.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. There can be some variation in the texture of the surface layer or of the substratum within a series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual." Many of the technical terms used in the descriptions are defined in "Soil Taxonomy." Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Amagon Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow

Parent material: Loamy alluvium
Landform position: Low terraces
Commonly associated soils: Askew, Dubbs, Dundee, and Teksob
Slope range: 0 to 1 percent
Taxonomic class: Fine-silty, mixed, active, thermic Typic Endoaqualfs

Typical Pedon

Amagon silt loam, 0 to 1 percent slopes, in a cut over woodlot in the SE¼NE¼SW¼ sec. 28, T. 9 N., R. 3 W.

A—0 to 3 inches; brown (10YR 4/3) silt loam; moderate fine and medium granular structure; very friable; many fine pores; many fine, common medium, and common coarse roots; common medium faint dark grayish brown (10YR 4/2) iron depletions in matrix; moderately acid; abrupt smooth boundary.

Eg1—3 to 8 inches; light brownish gray (10YR 6/2) silt loam; weak medium and coarse subangular blocky structure; very friable; common fine and medium pores; common fine and common medium roots; common coarse distinct yellowish brown (10YR 5/4) and common fine distinct dark brown (10YR 4/3) iron accumulations in matrix; most pores lined with brown (10YR 4/3) iron accumulations; few medium prominent black (10YR 2/1) manganese accumulations on faces of some peds and lining some pores; common fine hard brown-black iron-manganese concretions throughout; strongly acid; clear smooth boundary.

Eg2—8 to 15 inches; light brownish gray (10YR 6/2) silt loam; weak medium and coarse subangular blocky structure; very friable; many fine and medium pores; many fine and common medium roots; common coarse distinct yellowish brown (10YR 5/4), common fine distinct strong brown (7.5YR 5/8), and common medium distinct dark brown (10YR 4/3) iron accumulations in matrix and lining most pores; occasional medium prominent black (10YR 2/1) manganese accumulation on faces of peds; few fine hard iron-manganese concretions and few fine soft iron-manganese nodules in matrix; strongly acid; gradual smooth boundary.

Btg1—15 to 29 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium and coarse subangular blocky structure; friable; common fine pores; common fine, few medium, and few coarse roots; common distinct dark grayish brown (10YR 4/2) clay accumulations on faces of peds and lining most pores; common coarse faint light gray (10YR 7/1) clay depletions on faces of some peds making up approximately 5 percent of horizon; common medium faint dark grayish brown (10YR 4/2), common medium distinct strong brown (7.5YR 4/6), and few medium distinct strong brown (7.5YR 5/8) iron accumulations in matrix; few medium soft brown to red iron nodules in matrix; occasional fine prominent black (10YR 2/1) manganese accumulation on faces of some peds; two crayfish burrows approximately 2 inches in diameter filled with light gray (10YR 7/1) silt loam; moderately acid; gradual smooth boundary.

Btg2—29 to 41 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium and coarse subangular blocky structure; friable; common fine pores; few fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of some peds and lining some pores; few coarse light gray (10YR 7/1) clay depletions on faces of some peds; common medium faint yellowish brown (10YR 5/4), common medium distinct dark yellowish brown (10YR 3/4), and few medium distinct strong brown (7.5YR 5/8) iron accumulations in matrix; few distinct strong brown (7.5YR 5/8) iron accumulations lining old root channels; few medium brown to red soft iron-manganese nodules in matrix; one crayfish burrow filled with light gray (10YR 7/1) silt loam; slightly acid; gradual smooth boundary.

Btg3—41 to 53 inches; grayish brown (10YR 5/2) loam; moderate medium and coarse subangular blocky structure; friable; common fine pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of some peds and lining some pores; occasional medium hard calcium carbonate concretions in matrix; few coarse faint yellowish brown (10YR 5/4) and few medium strong brown (7.5YR 5/8) iron accumulations in matrix; few coarse prominent black (10YR 2/1) manganese accumulations on faces of some peds and lining pores; few medium soft brown (10YR 4/4) iron nodules in matrix; few medium black (10YR 2/1) soft nodules in matrix; slightly acid; clear smooth boundary.

BCg1—53 to 61 inches; light grayish brown (10YR 6/2) fine sandy loam; common medium and coarse subangular blocky structure; friable; many fine pores; few medium and coarse calcium carbonate concretions in matrix; few coarse distinct brownish yellow (10YR 6/6) and common fine and medium dark yellowish brown (10YR 3/4) iron accumulations in matrix; many medium prominent black (10YR 2/1) manganese accumulations on faces of some peds and lining most pores; few fine soft black (10YR 2/1) manganese nodules in matrix; slightly alkaline; clear smooth boundary.

BCg2—61 to 80 inches; light grayish brown (10YR 6/2) loam; weak coarse subangular blocky structure; friable; common fine pores; few medium and coarse calcium carbonate concretions in matrix; common fine and medium distinct strong brown (7.5YR 5/6) and few medium faint yellowish brown (10YR 5/4) iron accumulations in matrix; few coarse prominent black (10YR 2/1) manganese accumulations on faces of peds and lining some pores; slightly alkaline.

Range in Characteristics

Solum thickness: 50 to 80 inches or more

A horizon:
- Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
- Texture—silt loam
- Redoximorphic concentrations and depletions—shades of brown, gray, or yellow
- Reaction—very strongly acid to slightly acid

E horizon:
- Color—hue of 10YR, value of 5 to 7, and chroma of 1 or 2
- Texture—silt loam
- Redoximorphic concentrations and depletions—shades of brown, gray, or yellow
- Reaction—very strongly acid to slightly acid

Btg horizon:
- Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2
- Texture—loam, silt loam, or silty clay loam
- Redoximorphic concentrations and depletions—shades of brown, gray, or yellow
- Reaction—very strongly acid to slightly acid

BCg horizon:
- Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2
- Texture—silt loam, silty clay loam, loam, or fine sandy loam
- Redoximorphic concentrations and depletions—shades of gray, brown, or yellow
- Reaction—strongly acid to slightly alkaline

C horizon (where present):
- Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 to 4
- Texture—silt loam, fine sandy loam, sandy loam, loamy fine sand, or loamy sand
- Redoximorphic concentrations and depletions—shades of brown, gray, or yellow
- Reaction—strongly acid to slightly alkaline

Askew Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Parent material: Loamy alluvium
Landform position: Low terraces
Commonly associated soils: Amagon, Dubbs, Dundee, and Teksob
Slope range: 1 to 3 percent
Taxonomic class: Fine-silty, mixed, active, thermic Aquic Hapludalfs

Typical Pedon

Askew fine sandy loam, 1 to 3 percent slopes, in a cultivated field in the SW¼NW¼SE¼ sec. 29, T. 8 N., R. 2 W.

Ap—0 to 5 inches; brown (10YR 4/3) fine sandy loam, weak fine granular structure; friable; common fine roots; slightly acid; clear smooth boundary.

Bt1—5 to 15 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common fine pores; few faint clay films on faces of peds and lining some pores; few fine distinct grayish brown (10YR 5/2) iron depletions in matrix; few fine dark iron-manganese concretions; strongly acid; clear wavy boundary.

Bt2—15 to 26 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; firm; few fine roots; few fine pores; few faint clay films on faces of peds and lining some pores; common medium distinct gray (10YR 6/1) iron depletions in matrix; few fine dark iron-manganese concretions; strongly acid; gradual wavy boundary.

2BC—26 to 41 inches; pale brown (10YR 6/3) fine sandy loam; weak fine subangular blocky structure; friable; common fine pores; common medium distinct gray (10YR 6/1) iron depletions in matrix; common fine dark iron-manganese concretions; strongly acid; gradual wavy boundary.

2C—41 to 72 inches; brown (10YR 5/3) sandy loam; structureless, massive; friable; common medium pores; common fine and medium dark iron-manganese concretions; strongly acid.

Range in Characteristics

Solum thickness: 40 to 60 inches

Ap horizon:
- Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
- Texture—fine sandy loam
- Reaction—strongly acid to slightly acid

BA or AB horizon (where present):
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—very fine sandy loam, fine sandy loam, loam, or silt loam
Redoximorphic concentrations—shades of brown
Reaction—strongly acid to slightly acid

Bt1 horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3, 4, or 6; or hue of 7.5YR, value of 4 or 5, and chroma of 4 or 6
Texture—silt loam or silty clay loam
Redoximorphic concentrations and depletions—shades of brown or gray
Reaction—strongly acid to slightly acid

Bt2 horizon:
Color—hue of 10YR, value of 4 to 6, chroma of 2, 3, 4, or 6
Texture—silt loam, silty clay loam, clay loam, or loam
Redoximorphic concentrations and depletions—shades of brown or gray
Reaction—very strongly acid to slightly acid

2BC horizon:
Color—hue of 10YR, value of 4 to 6, chroma of 2, 3, 4, or 6
Texture—loam, sandy loam, or fine sandy loam
Redoximorphic concentrations and depletions—shades of brown or gray
Reaction—very strongly acid to slightly acid

2C horizon:
Color—hue of 10YR, value of 4 to 6, chroma of 2, 3, 4, or 6
Texture—sandy loam to sand
Redoximorphic concentrations and depletions—shades of brown or gray
Reaction—very strongly acid to slightly acid

Bonn Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Very slow
Parent material: Loamy sediments high in exchangeable sodium
Landform position: Terraces
Commonly associated soils: Foley, Grubbs, Lafe, McCrory, Overcup, and Tuckerman
Slope range: 0 to 1 percent
Taxonomic class: Fine-silty, mixed, superactive, thermic Glossic Natraqualfs

Typical Pedon

Bonn silt loam, in an area of Foley-Bonn complex, 0 to 1 percent slopes, in a cultivated field in the $NW^1/_4SE^1/_4NW^1/_4$ sec. 23, T. 6 N., R. 2 W.

Ap—0 to 5 inches; grayish brown (10YR 5/2) silt loam; weak fine granular structure; friable; many fine roots; common very fine tubular pores; common fine iron-manganese concretions; moderately acid; abrupt smooth boundary.
Eg—5 to 9 inches; light brownish gray (10YR 6/2) silt loam; weak fine subangular blocky structure; friable; common fine roots; common very fine tubular pores; common medium distinct yellowish brown (10YR 5/6) iron accumulations in matrix; common fine iron-manganese concretions; moderately acid; clear smooth boundary.
Eg/Btg—9 to 15 inches; about 60 percent (Eg) light gray (10YR 6/1) silt loam; weak coarse subangular blocky structure; friable; about 40 percent (Btg) gray (5Y 5/1) silty clay loam; weak coarse prismatic parting to moderate medium subangular blocky structure; firm; few fine roots; common fine and medium tubular pores; few distinct clay films on faces of peds and lining pores; few fine distinct yellowish brown (10YR 5/6) iron accumulations throughout; few fine and medium iron-manganese concretions; slightly acid; clear wavy boundary.
Btgn/Eg—15 to 23 inches; about 65 percent (Btgn) gray (2.5Y 6/2) silty clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky structure; firm; few fine roots; common fine tubular pores; few distinct clay films on faces of peds; about 35 percent (Eg) light gray (5Y 6/1) silt loam; weak coarse subangular blocky structure; friable; few fine yellowish brown (10YR 5/6) iron accumulations throughout; few fine and medium iron-manganese concretions; moderately alkaline; clear wavy boundary.
Btgn1—23 to 46 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky structure; firm; common fine tubular pores; common distinct clay films on faces of peds and lining pores; few fine prominent brownish yellow (10YR 6/6) iron accumulations in matrix; few fine and medium iron-manganese concretions; common medium distinct light gray (10YR 7/2) clay depletions on vertical prism faces; moderately alkaline; gradual wavy boundary.
Btgn2—46 to 55 inches; light brownish gray (2.5Y 6/2) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky structure; firm; common fine tubular pores;

few distinct clay films on faces of peds and lining pores; common medium prominent dark yellowish brown (10YR 4/4) and a few fine distinct olive brown (2.5Y 4/4) iron accumulations in matrix; few fine and medium iron-manganese concretions; common medium faint light gray (10YR 7/2) clay depletions on vertical prism faces; moderately alkaline; gradual wavy boundary.

BCgn—55 to 72 inches; light brownish gray (2.5Y 6/2) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky structure; friable; few fine tubular pores; few fine distinct olive brown (2.5Y 4/4) iron accumulations in matrix; few fine and medium iron-manganese concretions; moderately alkaline.

Range in Characteristics

Solum thickness: 60 to 72 inches or more

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam
Reaction—strongly acid to neutral

Eg horizon and Eg part of the Eg/Btg and Btgn/Eg horizons:
Color—hue of 10YR or 5Y, value of 5 to 7, and chroma of 1 or 2
Texture—silt loam
Redoximorphic concentrations and depletions—shades of yellow, brown, and gray
Reaction—strongly acid to neutral

Btg horizon and Btg part of the Eg/Btg horizon:
Color—hue of 10YR, 2.5Y, or 5Y, value of 5 or 6, and chroma of 1 or 2
Texture—silt loam or silty clay loam
Redoximorphic concentrations and depletions—shades of yellow, brown, and gray
Reaction—moderately acid to moderately alkaline

Btgn horizon and Btgn part of the Btgn/Eg horizon:
Color—hue of 10YR, 2.5Y, or 5Y, value of 5 or 6, and chroma of 1 or 2
Texture—silt loam or silty clay loam
Redoximorphic concentrations and depletions—shades of yellow, brown, and gray
Reaction—slightly alkaline to strongly alkaline

BCgn horizon:
Color—hue of 10YR, 2.5Y, or 5Y, value of 5 or 6, and chroma of 1 or 2
Texture—silt loam or silty clay loam
Redoximorphic concentrations and depletions—shades of yellow, brown, and gray
Reaction—slightly alkaline to strongly alkaline

Cg horizon (where present):
Color—hue of 10YR, 2.5Y, or 5Y, value of 5 or 6, and chroma of 1 or 2
Texture—silt loam or silty clay loam
Redoximorphic concentrations and depletions—shades of yellow, brown, and gray
Reaction—slightly alkaline to strongly alkaline

Bulltown Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Parent material: Sandy, eolian deposits
Landform position: Dunes on terraces
Commonly associated soils: Patterson, Tuckerman, and Wiville
Slope range: 1 to 8 percent
Taxonomic class: Loamy, siliceous, active, thermic Arenic Hapludalfs

Typical Pedon

Bulltown loamy fine sand, 1 to 8 percent slopes, in a cultivated field in the SW$^{1}/_{4}$NW$^{1}/_{4}$NE$^{1}/_{4}$ sec. 23, T. 6 N., R. 3 W.

Ap1—0 to 4 inches; dark yellowish brown (10YR 4/4) loamy fine sand; weak medium granular structure; very friable; common fine and very fine roots; common fine and very fine pores; few fine round cemented iron-manganese concretions; strongly acid; abrupt smooth boundary.

Ap2—4 to 8 inches; brown (7.5YR 4/4) loamy fine sand; weak medium subangular blocky structure; firm; few pockets of dark yellowish brown (10YR 4/4) loamy fine sand; few fine and very fine roots; few fine and very fine pores; few fine round cemented iron-manganese concretions; moderately acid; abrupt smooth boundary.

E1—8 to 16 inches; dark yellowish brown (10YR 4/4) loamy fine sand; weak medium subangular blocky structure; friable; few fine and very fine roots; few fine and very fine pores; few fine round cemented iron-manganese concretions; slightly acid; gradual smooth boundary.

E2—16 to 26 inches; dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4) loamy fine sand; weak coarse subangular blocky structure; very friable; few fine and very fine roots; few fine and very fine pores; few fine round cemented iron-manganese concretions; moderately acid; clear smooth boundary.

Bt1—26 to 37 inches; brown (7.5YR 4/4) fine sandy loam; moderate medium subangular blocky

structure; friable; common fine and very fine pores; few faint clay films on faces of some peds and lining some pores; few fine distinct brown (10YR 5/3) iron depletions in matrix and few fine distinct dark brown (10YR 3/3) iron accumulations in matrix; few fine prominent black (10YR 2/1) manganese accumulations on vertical ped faces; few fine round cemented iron-manganese concretions; moderately acid; clear smooth boundary.

Bt2—37 to 51 inches; brown (7.5YR 4/4) sandy clay loam; moderate medium subangular blocky structure; friable; many fine and very fine pores; many faint clay films on faces of peds and lining pores; common medium distinct pale brown (10YR 6/3) and grayish brown (10YR 5/2) iron depletions in matrix; few fine distinct yellowish brown (10YR 5/6) iron accumulations in matrix; common fine round cemented iron-manganese concretions; common coarse prominent black (10YR 2/1) manganese accumulations on faces of peds; moderately acid; gradual smooth boundary.

BC—51 to 69 inches; brown (7.5YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine and very fine pores; common medium distinct dark brown (10YR 3/3) iron accumulations in matrix; few fine round cemented iron-manganese concretions; common coarse prominent black (10YR 2/1) manganese accumulations on faces of peds; strongly acid; clear smooth boundary.

C—69 to 80 inches; brown (10YR 5/3) and yellowish brown (10YR 5/4) loamy fine sand; structureless, massive; very friable; moderately acid.

Range in Characteristics

Solum thickness: 50 to 80 inches or more

Ap horizon:
- Color—hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 3 or 4
- Texture—loamy fine sand
- Reaction—strongly acid to slightly acid

E horizon:
- Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 or 4
- Texture—loamy sand or loamy fine sand
- Reaction— strongly acid to slightly acid

Bt horizon:
- Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 or 6
- Texture—fine sandy loam, loam, or sandy clay loam
- Redoximorphic concentrations and depletions—shades of brown
- Reaction—very strongly acid to moderately acid

BC horizon:
- Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 or 6
- Texture—fine sandy loam, sandy loam, loamy sand, or loamy fine sand
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—very strongly acid to moderately acid

C horizon:
- Color—hue of 10YR, value of 4 or 5, and chroma of 4 or 6
- Texture—loamy sand, loamy fine sand, fine sand, or sand
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—very strongly acid to moderately acid

Calhoun Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow
Parent material: Loess
Landform position: Loess covered terraces
Commonly associated soils: Calloway, Grenada, Henry, Hillemann, and Tichnor
Slope range: 0 to 1 percent
Taxonomic class: Fine-silty, mixed, active, thermic Typic Glossaqualfs

Typical Pedon

Calhoun silt loam, 0 to 1 percent slopes, in a rice-soybean field in the NE$^1/_4$NW$^1/_4$NE$^1/_4$ sec. 36, T. 7 N., R. 1 W.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; common very fine and fine roots; few fine black concretions; slightly acid; abrupt smooth boundary.

Eg1—6 to 11 inches; gray (10YR 6/1) silt loam; weak medium subangular blocky structure; friable; few fine roots; common fine tubular pores; common medium distinct yellowish brown (10YR 5/6) iron accumulations in matrix; few fine black and brown concretions; slightly acid; clear wavy boundary.

Eg2—11 to 16 inches; gray (10YR 6/1) silt loam; weak medium subangular blocky structure; few fine roots; common fine tubular pores; common medium distinct brown (10YR 5/3) and yellowish brown (10YR 5/6) iron accumulations in the matrix;

common fine black and brown concretions; very strongly acid; clear wavy boundary.

Btg1/Eg—16 to 31 inches; light brownish gray (10YR 6/2) silty clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky structure; firm; (Eg) tongues of light gray (10YR 7/1) silt 1/2 inch to 2 inches wide extend through the horizon and make up about 25 percent of the matrix; few fine roots; few fine tubular pores; few faint clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) iron accumulations in matrix; common fine black and brown concretions; very strongly acid; clear wavy boundary.

Btg2/Eg—31 to 54 inches; grayish brown (2.5Y 5/2) silty clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky structure; firm; (Eg) tongues of light gray (10YR 7/1) silt 1/4 to 1 inch wide extending into the horizon decreasing with depth and makes up about 10 percent of the matrix; few fine tubular pores; few faint clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) iron accumulations in matrix; common fine black and brown concretions; very strongly acid; gradual wavy boundary.

BCg—54 to 72 inches; light brownish gray (10YR 6/2) silt loam; weak medium subangular blocky structure; firm; few fine tubular pores; common medium distinct yellowish brown (10YR 5/4) iron accumulations in matrix; few fine black and brown concretions; very strongly acid.

Range in Characteristics

Solum thickness: 40 to 80 inches

Ap horizon:
- Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
- Texture—silt loam
- Reaction—strongly acid to moderately acid, except where limed or affected by irrigation water

Eg horizon:
- Color—hue of 10YR or 2.5Y, value of 5, 6, or 7, and chroma of 1 or 2
- Texture—silt loam
- Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
- Reaction—very strongly acid to moderately acid, except where limed or affected by irrigation water

Btg horizon:
- Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2
- Texture—silt loam or silty clay loam
- Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
- Reaction—very strongly acid or strongly acid

BCg horizon:
- Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2
- Texture—silt loam or silty clay loam
- Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
- Reaction—very strongly acid to moderately acid

Cg horizon (where present):
- Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2
- Texture—silt loam
- Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
- Reaction—very strongly acid to moderately acid

Calloway Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Slow
Parent material: Loess
Landform position: Loess covered terraces
Commonly associated soils: Calhoun, Grenada, Henry, Hillemann, Oaklimeter, and Tichnor
Slope range: 0 to 3 percent
Taxonomic class: Fine-silty, mixed, active, thermic Aquic Fragiudalfs

Typical Pedon

Calloway silt loam, 0 to 1 percent slopes, in a cultivated field in the NW1/4SE1/4SE1/4 sec. 28, T. 8 N., R. 1 W.

Ap—0 to 5 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; common fine roots; few fine black concretions; strongly acid; abrupt smooth boundary.

E—5 to 8 inches; brown (10YR 5/3) silt loam; weak fine subangular blocky structure; friable; common fine roots; few fine faint yellowish brown (10YR 5/4) iron accumulations in matrix; few fine black concretions; very strongly acid; clear smooth boundary.

Bw—8 to 18 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; common fine pores; few fine roots; common medium distinct light brownish gray (10YR

6/2) iron depletions in matrix; few fine black and brown concretions; very strongly acid; clear smooth boundary.

E´—18 to 23 inches; gray (10YR 6/1) silt loam; weak medium subangular blocky structure; friable; common fine pores; common medium distinct yellowish brown (10YR 5/8) iron accumulations in matrix; few fine black and brown concretions; very strongly acid; clear irregular boundary.

Btx1—23 to 32 inches; grayish brown (10YR 5/2) silty clay loam; weak coarse prismatic structure parting to moderate fine and medium subangular blocky structure; firm; compact and brittle in more than 60 percent of the matrix; common fine pores; few faint clay films on faces of prisms; many medium distinct yellowish brown (10YR 5/6, 5/8) iron accumulations; common fine black and brown concretions; tongues of gray (10YR 6/1) silt loam 1/2 inch to 1 1/4 inches wide extend throughout horizon; very strongly acid; clear wavy boundary.

Btx2—32 to 42 inches; grayish brown (10YR 5/2) silty clay loam; weak coarse prismatic structure parting to moderate fine and medium subangular blocky structure; firm; compact and brittle in about 60 percent of the matrix; common fine pores; few faint clay films on faces of prisms; many medium faint brown (10YR 5/3) and many medium distinct yellowish brown (10YR 5/6) iron accumulations; common fine black and brown concretions; tongues of gray (10YR 6/1) silt loam 1/2 inch to 1 1/4 inches wide extend throughout horizon; very strongly acid; clear wavy boundary.

Btx3—42 to 60 inches; yellowish brown (10YR 5/6) silt loam; weak coarse prismatic structure parting to moderate medium subangular blocky structure; firm; compact and brittle; common fine pores; few faint clay films on faces of prisms; common medium distinct grayish brown (10YR 5/2) iron depletions; few fine black and brown concretions; common medium gray (10YR 6/1) clay depletions on faces of peds and prisms; strongly acid; gradual wavy boundary.

Btx4—60 to 72 inches; grayish brown (10YR 5/2) and yellowish brown (10YR 5/6) silt loam; weak medium prismatic structure parting to moderate fine and medium subangular blocky structure; firm; compact and brittle; few fine pores; few faint clay films on faces of prisms; few fine black and brown concretions; strongly acid.

Range in Characteristics

Solum thickness: >60 inches
Depth to fragipan: 18 to 30 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam
Reaction—very strongly acid to moderately acid

E horizon:
Color— hue of 10YR, value of 5 or 6, and chroma of 2 to 4
Texture—silt loam or silt
Redoximorphic concentrations and depletions—shades of brown and gray
Reaction—very strongly acid to moderately acid

Bw horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 4 or 6
Texture—silt loam or silty clay loam
Redoximorphic concentrations and depletions—shades of brown and gray
Reaction—very strongly acid to moderately acid

E´ horizon:
Color—hue of 10YR, value of 6 or 7, and chroma of 1 or 2
Texture—silt or silt loam
Redoximorphic concentrations and depletions—shades of brown and gray
Reaction—very strongly acid to moderately acid

Btx horizon:
Color—hue of 10YR, value of 5, and chroma of 2, 3, 4, or 6
Texture—silt loam or silty clay loam
Redoximorphic concentrations and depletions—shades of brown and gray
Reaction—very strongly acid to moderately acid

Dubbs Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Loamy alluvium
Landform position: Natural levees and stream terraces
Commonly associated soils: Amagon, Askew, Dundee, and Teksob
Slope range: 0 to 8 percent
Taxonomic class: Fine-silty, mixed, active, thermic Typic Hapludalfs

Typical Pedon

Dubbs silt loam, 1 to 3 percent slopes, in a cultivated field in the NE1/4SW1/4NE1/4 sec. 22, T. 8 N., R. 8 W.

Ap—0 to 5 inches; brown (10YR 4/3) silt loam; weak

fine granular structure; very friable; many fine roots; moderately acid; abrupt smooth boundary.
BA—5 to 12 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; common fine roots; common pores; moderately acid; clear smooth boundary.
Bt1—12 to 34 inches; brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; common faint clay films on faces of peds; common fine roots; few fine pores; common dark stains on some ped surfaces; strongly acid; gradual smooth boundary.
Bt2—34 to 50 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; firm; many distinct clay films on faces of peds; few fine roots; few fine pores; common dark stains on ped surfaces; strongly acid; clear wavy boundary.
BC—50 to 60 inches; dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure; friable; few fine pores; few fine distinct pale brown (10YR 6/3) iron depletions in matrix; few dark stains on ped surfaces; strongly acid; gradual smooth boundary.
C—60 to 72 inches; brown (10YR 4/3) fine sandy loam; structureless, massive; friable, dark stains throughout; common fine distinct pale brown (10YR 6/3) iron depletions in matrix; few fine concretions; strongly acid.

Range in Characteristics

Solum thickness: 40 to 60 inches

Ap horizon:
Color—hue of 10YR, value of 4, and chroma of 3 or 4; or hue of 7.5YR, value of 4, and chroma of 4
Texture—silt loam
Reaction—very strongly acid to moderately acid

BA horizon:
Color—hue of 10YR, value of 4, and chroma of 3 or 4; or hue of 7.5YR, value of 4, and chroma of 4
Texture—silt loam or loam
Reaction—very strongly acid to moderately acid

Bt horizon:
Color—hue of 10YR or 7.5YR, value 4 or 5, and chroma of 4 or 6
Texture—silty clay loam, clay loam, silt loam, or loam
Redoximorphic concentrations and depletions (when present)—shades of gray and brown
Reaction—very strongly acid to moderately acid

BC horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3, 4, or 6
Texture—silt loam, loam, or very fine sandy loam
Redoximorphic concentrations and depletions—shades of brown and gray
Reaction—very strongly acid to moderately acid

C horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 3, 4, or 6
Texture—fine sandy loam, loam, sandy loam, or loamy fine sand
Redoximorphic concentrations and depletions—shades of brown and gray
Reaction—very strongly acid to moderately acid

Dundee Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Parent material: Loamy alluvium
Landform position: Natural levees and low terraces
Commonly associated soils: Amagon, Askew, Dubbs, and Teksob
Slope range: 0 to 1 percent
Taxonomic class: Fine-silty, mixed, active, thermic Typic Endoaqualfs

Typical Pedon

Dundee silt loam, 0 to 1 percent slopes, in a cultivated field in the NE¼SE¼SW¼ sec. 29, T. 9 N., R. 3 W.

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; many very fine and common fine roots; few very fine tubular pores; moderately acid; clear smooth boundary.
Btg1—6 to 14 inches; grayish brown (10YR 5/2) silty clay loam; moderate fine and medium subangular blocky structure; firm; common distinct clay films on faces of peds and lining pores; few fine tubular pores; few fine faint yellowish brown (10YR 5/6) iron accumulations in matrix; common medium iron-manganese concretions; gray (10YR 5/1) and light brownish gray (10YR 6/2) clay depletions on faces of peds; very strongly acid; clear wavy boundary.
Btg2—14 to 32 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; few fine tubular pores; few distinct clay films on faces of peds and lining pores; common medium distinct strong brown (7.5YR 5/6) and yellowish brown (10YR 5/4) iron accumulations in matrix; common

medium iron-manganese concretions; very strongly acid; clear wavy boundary.
BCg—32 to 49 inches; light brownish gray (10YR 6/2) silt loam; weak medium subangular structure; friable; few fine tubular pores; common medium distinct yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/4) iron accumulations in matrix; few fine and medium iron-manganese concretions; very strongly acid; gradual wavy boundary.
Cg—49 to 72 inches; gray (10YR 6/1) loam; structureless, massive; friable; common medium distinct strong brown (7.5YR 5/6) and dark yellowish brown (10YR 4/4) iron accumulations in matrix; few medium iron-manganese concretions; strongly acid.

Range in Characteristics

Solum thickness: 40 to 60 inches or more

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam
Reaction—very strongly acid to moderately acid

BA horizon (where present):
Color—hue of 10YR, value of 4 or 5, and chroma of 2
Texture—silt loam or loam
Reaction—very strongly acid to moderately acid

Btg horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2
Texture—silt loam, clay loam, or silty clay loam
Redoximorphic concentrations and depletions—shades of brown and gray
Reaction—very strongly acid to moderately acid

BCg horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2; or hue of 2.5Y, value of 4 or 5, and chroma of 2
Texture—loam or silt loam
Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
Reaction—very strongly acid to moderately acid

Cg horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2
Texture—loam, very fine sandy loam, or silt loam
Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
Reaction—very strongly acid to neutral

Foley Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Very slow
Parent material: Loamy material high in exchangeable sodium
Landform position: Low terraces
Commonly associated soils: Bonn, Forestdale, Grubbs, Jackport, Lafe, McCrory, Overcup, and Tuckerman
Slope range: 0 to 1 percent
Taxonomic class: Fine-silty, mixed, active, thermic Albic Glossic Natraqualfs

Typical Pedon

Foley silt loam, in an area of Foley-Bonn complex, 0 to 1 percent slopes, in a cultivated field in the SW¼NW¼NW¼ sec. 27, T. 8 N., R. 2 W.

Ap1—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; very friable; common fine and very fine pores; many fine and medium roots; few fine distinct light brownish gray (10YR 6/2) iron depletions on faces of peds; few fine and medium black iron-manganese concretions; very strongly acid; abrupt smooth boundary.
Ap2—4 to 9 inches; light brownish gray (10YR 6/2) silt loam; weak medium granular structure; friable; few fine pores; few fine roots; many medium distinct dark grayish brown (10YR 4/2) and common medium distinct dark yellowish brown (10YR 4/4) iron accumulations on faces of peds; common fine and medium black iron-manganese concretions; very strongly acid; clear smooth boundary.
Eg1—9 to 16 inches; gray (10YR 6/1) silt loam; weak medium subangular blocky structure; friable; common fine and very fine pores; few fine roots; few fine distinct yellowish brown (10YR 5/4) and dark grayish brown (10YR 4/2) iron accumulations in matrix; common fine and medium black iron-manganese concretions; strongly acid; clear smooth boundary.
Eg2—16 to 20 inches; gray (10YR 6/1) silt loam; weak medium subangular blocky structure; friable; many very fine pores; few fine roots; few fine distinct yellowish brown (10YR 5/4) iron accumulations in matrix; common medium black iron-manganese concretions; moderately acid; clear wavy boundary.
B/E1—20 to 26 inches; (Btng) gray (10YR 5/1) silt loam; moderate fine and medium subangular blocky structure; firm; common fine pores; few faint clay films on faces of some peds and in root

channels; (Eg) light gray (10YR 7/1) massive silt tongues 1/4 inch to 2 inches wide extending through the horizon and making up about 30 percent of the total volume; few fine roots throughout; few fine distinct yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/4) iron accumulations throughout; many medium and coarse black iron-manganese concretions throughout; slightly acid; clear wavy boundary.

B/E2—26 to 41 inches; (Btng) gray (10YR 6/1) silty clay loam; weak coarse prismatic parting to moderate fine and medium blocky structure; firm; few fine pores; few faint clay films on faces of some peds; (Eg) light gray (10YR 7/1) massive silt tongues 1/2 inch to 1 1/4 inches wide extending through the horizon and making up about 15 percent of the total volume; few fine roots throughout; few fine distinct yellowish brown (10YR 5/6) and brown (10YR 4/3) iron accumulations throughout; few fine distinct very dark gray (10YR 3/1) manganese accumulations on faces of several peds in B part; common fine and medium black iron-manganese concretions throughout; moderately alkaline; clear wavy boundary.

B/E3—41 to 52 inches; (Btng) gray (10YR 6/1) silty clay loam; weak medium prismatic parting to moderate medium subangular blocky structure; firm; few fine pores; common distinct dark gray (10YR 4/1) clay films on most vertical and horizontal ped faces; (Eg) light gray (10YR 7/1) massive silt tongues 1/2 to 1 inch wide decreasing in width with depth and making up about 10 percent of the total volume; few fine roots throughout; few fine distinct yellowish brown (10YR 5/8) and brown (10YR 4/3) iron accumulations throughout; common fine distinct very dark gray (10YR 3/1) manganese accumulations on faces of many peds in B part; common medium black iron-manganese concretions throughout; moderately alkaline; gradual wavy boundary.

Btng—52 to 67 inches; gray (10YR 6/1) silt loam; moderate medium subangular blocky structure; firm; few fine pores; few fine roots; common faint dark gray (10YR 4/1) clay films on many vertical and horizontal ped faces; common medium distinct yellowish brown (10YR 5/4), dark yellowish brown (10YR 4/4), and strong brown (7.5YR 5/6) iron accumulations throughout; few fine distinct very dark gray (10YR 3/1) manganese accumulations on faces of some peds; many fine black iron-manganese concretions; common pitted carbonate concretions 1/2 inch to 1 1/2 inches in diameter; moderately alkaline; clear wavy boundary.

BCng—67 to 80 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium and coarse subangular blocky structure; very firm and slightly brittle; few fine pores; occasional faint clay films on faces of some peds; few medium distinct yellowish brown (10YR 5/6) and common medium distinct dark yellowish brown (10YR 4/4) iron accumulations; few pitted carbonate concretions 1/2 inch to 3 1/2 inches in diameter decreasing in number with depth; common fine black iron-manganese concretions; strongly alkaline.

Range in Characteristics

Solum thickness: 50 to 80 inches or more

Ap horizon:
- Color—hue of 10YR, value of 4 to 6, and chroma of 2 or value of 5 and chroma of 3
- Texture—silt loam
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—very strongly acid to moderately acid

E horizon and E part of the B/E horizon:
- Color—hue of 10YR, value of 5 to 7, and chroma of 1 or 2
- Texture—silt loam or silt
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—strongly acid to neutral

B horizon and B part of the B/E horizon:
- Color—hue of 10YR, 5Y or 2.5Y, value of 4 to 6, and chroma of 1 or 2
- Texture—silt loam or silty clay loam
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—strongly acid to strongly alkaline

BC horizon:
- Color—hue of 10YR , 5Y, or 2.5Y, value of 4, 5, or 6, and chroma of 1 or 2
- Texture—silt loam or silty clay loam
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—slightly acid to strongly alkaline

Forestdale Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Very slow
Parent material: Clayey and silty alluvium
Landform position: Low stream terraces and depressions

Commonly associated soils: Foley, Grubbs, Jackport, and Overcup
Slope range: 0 to 1 percent
Taxonomic class: Fine, smectitic, thermic Typic Endoaqualfs

Typical Pedon

Forestdale silty clay loam, 0 to 1 percent slopes, frequently flooded, in a cultivated field in the NE¼SE¼SE¼ sec. 35, T. 6 N., R. 3 W.

Ap—0 to 6 inches; grayish brown (10YR 5/2) silty clay loam; weak fine subangular blocky structure; firm; common fine roots; moderately acid; abrupt smooth boundary.
Btg1—6 to 17 inches; light gray (10YR 6/1) silty clay loam; moderate medium subangular blocky structure; firm; common distinct clay films on ped faces; few fine roots; few medium distinct dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) iron accumulations; few fine black and brown concretions; strongly acid; clear wavy boundary.
Btg2—17 to 28 inches; light gray (10YR 6/1) silty clay; moderate medium subangular blocky structure; plastic; very firm; many prominent clay films on ped faces; few fine roots; common medium distinct dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) iron accumulations; few fine and medium black and brown concretions; strongly acid; gradual wavy boundary.
Btg3—28 to 45 inches; grayish brown (10YR 5/2) silty clay; moderate medium subangular blocky structure; plastic; very firm; many prominent clay films on ped faces; common medium distinct yellowish brown (10YR 5/6) iron accumulations; few fine and medium black and brown concretions; strongly acid; gradual wavy boundary.
Btg4—45 to 58 inches; grayish brown (2.5Y 5/2) silty clay; moderate medium subangular blocky structure; plastic; very firm; few distinct clay films on ped faces; common medium distinct yellowish brown (10YR 5/6) iron accumulations; few fine black and brown concretions; strongly acid; gradual wavy boundary.
BCg—58 to 72 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak medium subangular blocky structure; firm; common medium distinct yellowish brown (10YR 5/6) and few medium prominent strong brown (7.5YR 5/6) iron accumulations; few fine black concretions; moderately acid.

Range in Characteristics

Solum thickness: 40 to 60 inches or more

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 1 or 2
Texture—silty clay loam
Reaction—very strongly acid to moderately acid

Btg horizon (upper part):
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or value of 6 or 7 and chroma of 1 or 2
Texture—silty clay loam or silty clay
Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
Reaction—very strongly acid to moderately acid

Btg horizon (lower part):
Color—hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2
Texture—silty clay loam or silty clay
Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
Reaction—very strongly acid to moderately acid

BCg horizon:
Color—hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2
Texture—silty clay loam or silt loam
Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
Reaction—very strongly acid to mildly alkaline

Grenada Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and slow in the fragipan
Parent material: Loess
Landform position: Loess covered terraces
Commonly associated soils: Calhoun, Calloway, Henry, Hillemann, Oaklimeter, and Tichnor
Slope range: 1 to 8 percent
Taxonomic class: Fine-silty, mixed, active, thermic Oxyaquic Fragiudalfs

Typical Pedon

Grenada silt loam, 1 to 3 percent slopes, in an idle field in the SW¼SW¼SE¼ sec. 28, T. 7 N., R. 1 W.

Ap—0 to 4 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; common fine roots; slightly acid; abrupt smooth boundary.
Bw1—4 to 12 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; common fine roots; very strongly acid; clear smooth boundary.

Bw2—12 to 22 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; few fine roots; few fine black concretions; very strongly acid; clear wavy boundary.
Eg—22 to 24 inches; gray (10YR 6/1) silt loam; weak fine and medium subangular blocky structure; friable, hard, brittle, common fine vesicular pores; common fine distinct yellowish brown (10YR 5/6) iron accumulations; common fine black concretions; very strongly acid; abrupt irregular boundary.
B/E1—24 to 36 inches; (Btx) yellowish brown (10YR 5/4) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky structure; firm, compact, and brittle in more than 60 percent of the matrix; few distinct clay films on prism faces and lining pores; (Eg) about 20 percent of matrix is light gray (10YR 6/1) silt tongues 1/2 to 1 inch wide; common medium distinct gray (10YR 6/1) iron depletions in matrix; few fine concretions; very strongly acid; gradual wavy boundary.
B/E2—36 to 50 inches; (Btx) yellowish brown (10YR 5/4) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky structure; firm, compact, and brittle in more than 60 percent of the matrix; many distinct clay films on prism and ped faces; (Eg) about 15 percent of matrix is light gray (10YR 6/1) silt tongues 1/2 to 1 inch wide; common medium distinct gray (10YR 6/1) iron depletions in matrix; common fine black concretions; few vesicular pores; strongly acid; clear wavy boundary.
Btx—50 to 72 inches, yellowish brown (10YR 5/4) silt loam; weak coarse prismatic structure parting to moderate medium subangular blocky structure; firm, compact, and brittle in about 40 percent of the matrix; few faint clay films on faces of peds and in lining pores; gray (10YR 6/1) clay depletions on faces of peds and vertical prism faces; common medium distinct gray (10YR 6/1) iron depletions in matrix; common fine black concretions; strongly acid.

Range in Characteristics

Solum thickness: >60 inches
Depth to fragipan: 18 to 30 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4 or value of 4 and chroma of 2
Texture—silt loam
Reaction—very strongly acid to moderately acid

Bw horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 4 or 6
Texture—silt loam or silty clay loam
Redoximorphic concentrations and depletions—shades of brown
Reaction—very strongly acid to moderately acid

E horizon and E part of the B/E horizon:
Color—hue of 10YR, value of 5 to 7, and chroma of 1 or 2; or hue of 2.5Y, value of 5 or 6, and chroma of 2
Texture—silt or silt loam
Redoximorphic concentrations and depletions—shades of brown
Reaction—very strongly acid to moderately acid

Btx horizon and B part of the B/E horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3, 4, or 6; or hue of 7.5YR, value of 4 or 5, and chroma of 4; or no dominant color and variegated in shades of brown and gray
Texture—silt loam or silty clay loam
Redoximorphic concentrations and depletions—shades of brown and gray
Reaction—very strongly acid to moderately acid in the upper part and strongly acid to slightly acid in the lower part

Grubbs Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Very slow
Parent material: Loess or loess-like material with low sand content
Landform position: Edges of terrace and escarpments between lower terraces
Commonly associated soils: Bonn, Calhoun, Calloway, Foley, Forestdale, Hillemann, Jackport, and Overcup
Slope range: 1 to 8 percent
Taxonomic class: Fine, mixed, active, thermic Albaquic Hapludalfs

Typical Pedon

Grubbs silt loam, 3 to 8 percent slopes, eroded in an idle field in the SE1/4SE1/4NW1/4 sec. 24, T. 6 N., R. 3 W.

Ap—0 to 5 inches; brown (10YR 4/3) silt loam; moderate medium and coarse granular structure; friable; many fine and medium roots; many medium pores; slightly acid; abrupt smooth boundary.

Bt1—5 to 12 inches; yellowish red (5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; many fine roots; common fine and medium pores; few faint clay films lining some pores; few medium distinct pale brown (10YR 6/3) iron depletions; moderately acid; gradual wavy boundary.

Bt2—12 to 20 inches; red (2.5YR 4/6) silty clay; moderate medium subangular blocky structure; firm; common fine roots; common fine and medium pores; many distinct clay films on faces of peds and lining pores; many fine prominent light brownish gray (10YR 6/2) and few medium distinct yellowish brown (10YR 5/4) iron accumulations in matrix; very strongly acid; clear wavy boundary.

Bt3—20 to 26 inches; yellowish brown (10YR 5/4) silty clay; moderate medium subangular blocky structure; firm; common fine and few medium roots; common fine and very fine and few medium pores; common distinct clay films on faces of peds and lining pores; common fine and medium grayish brown (10YR 5/2) iron depletions; few medium distinct yellowish red (5YR 4/6) iron accumulations; few fine brown iron-manganese concretions; very strongly acid; clear wavy boundary.

Btg1—26 to 40 inches; light brownish gray (10YR 6/2) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots; common fine and medium pores; common distinct clay films on some faces of peds and lining pores; many white (10YR 8/2) clay depletions on faces of peds in upper 5 inches; many medium distinct dark yellowish brown (10YR 4/4), few medium distinct strong brown (7.5YR 4/6), and few fine faint pale brown (10YR 6/3) iron accumulations in matrix; few medium prominent black (10YR 2/1) manganese accumulations on faces of some peds; few medium brown iron-manganese concretions; strongly acid; clear smooth boundary.

Btg2—40 to 52 inches; grayish brown (10YR 5/2) silt loam; moderate medium subangular blocky structure; friable; few fine roots; common fine and medium pores; common distinct clay films on faces of some peds and lining pores; many medium distinct dark yellowish brown (10YR 4/4) iron accumulations and common medium pale brown (10YR 6/3) iron depletions in matrix; few fine and medium brown iron-manganese concretions; few medium prominent black (10YR 2/1) manganese accumulations on faces of some peds; strongly acid; gradual wavy boundary.

B´t—52 to 64 inches; brown (10YR 4/3) silt loam; moderate coarse subangular blocky structure; friable; few fine roots; common very fine and fine and medium pores; common distinct clay films mainly in pores; common coarse distinct grayish brown (10YR 5/2) and few medium distinct pale brown (10YR 6/3) iron depletions; few fine and medium brown iron-manganese concretions; few medium prominent black (10YR 2/1) manganese accumulations on faces of some peds; few medium white (10YR 8/2) powdery barite masses; slightly acid; gradual smooth boundary.

BC—64 to 76 inches; brown (10YR 4/3) silt loam; moderate coarse subangular blocky structure; friable; common very fine and fine and medium pores; common coarse distinct grayish brown (10YR 5/2) and few fine distinct pale brown (10YR 6/3) iron depletions; few fine and medium brown iron-manganese concretions; few medium prominent black (10YR 2/1) manganese accumulations on faces on some peds; few medium white (10YR 8/2) powdery barite masses; neutral.

Range in Characteristics

Solum thickness: 50 to 80 inches or more

Ap horizon:
- Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4 or value of 4 and chroma of 2
- Texture—silt loam
- Reaction—moderately acid to slightly acid

Bt horizon:
- Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 or 6
- Texture—clay, silty clay, or silty clay loam
- Redoximorphic concentrations and depletions—shades of red, brown, and gray
- Reaction—very strongly acid to moderately acid

Btg horizon:
- Color—hue of 10YR, value of 5 or 6, and chroma of 2
- Texture—silty clay, silty clay loam, or silt loam
- Redoximorphic concentrations and depletions—shades of red, brown, and gray
- Reaction—very strongly acid to moderately acid

B´t horizon:
- Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3, 4, or 6
- Texture—silty clay loam or silt loam
- Redoximorphic concentrations and depletions—shades of brown, red, and gray
- Reaction—strongly acid to neutral

BC horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 2 to 6
Texture—silty clay loam or silt loam
Redoximorphic concentrations and depletions—shades of brown and gray
Reaction—strongly acid to neutral

Henry Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow
Parent material: Loess
Landform position: Depressions on loess covered terraces
Commonly associated soils: Calhoun, Calloway, Grenada, and Tichnor
Slope range: 0 to 1 percent
Taxonomic class: Coarse-silty, mixed, active, thermic Typic Fragiaqualfs

Typical Pedon

Henry silt loam, 0 to 1 percent slopes, in a cultivated field in the NE¼NE¼ sec. 22, R. 1 W., T. 7 N.

Ap—0 to 6 inches; grayish brown (10YR 5/2) silt loam; weak fine granular structure; friable; common fine roots; few fine brown concretions; moderately acid; gradual smooth boundary.
Eg1—6 to 14 inches; light brownish gray (10YR 6/2) silt loam; common distinct yellowish brown (10YR 5/6) iron accumulations mainly in root channels; weak medium subangular blocky structure; friable; common fine roots; common fine concretions; very strongly acid; gradual smooth boundary.
Eg2—14 to 22 inches; light brownish gray (10YR 6/2) silt loam; weak medium subangular blocky structure; friable; common fine pores; few fine distinct yellowish brown (10YR 5/6) iron accumulations; common fine and medium dark concretions; very strongly acid; clear irregular boundary.
Btxg1—22 to 32 inches; grayish brown (10YR 5/2) silty clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky structure; firm; compact and brittle in more than 60 percent of the matrix; common fine pores; common distinct clay films on faces of peds and prisms; common medium distinct yellowish brown (10YR 5/6) iron accumulations; common fine and medium distinct gray (10YR 6/1) clay depletions between prisms; common fine and medium dark concretions; very strongly acid; clear wavy boundary.
Btxg2—32 to 46 inches; grayish brown (10YR 5/2) silty clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky structure; very firm, compact, and brittle in more than 60 percent of the matrix; common fine pores; few faint clay films on faces of peds and lining some pores; many coarse distinct yellowish brown (10YR 5/6) iron accumulations; common fine and medium dark concretions; common fine gray (10YR 6/1) clay depletions on vertical prism faces; very strongly acid; gradual wavy boundary.
Btxg3—46 to 60 inches; light brownish gray (10YR 6/2) silty clay loam; moderate medium subangular blocky structure; firm, compact, and brittle in 40 percent of the matrix; common fine pores; few faint clay films on faces of peds; many coarse distinct yellowish brown (10YR 5/6) iron accumulations; common fine and medium dark concretions; very strongly acid; gradual smooth boundary.
BCg—60 to 72 inches; gray (10YR 6/1) silt loam; moderate medium subangular blocky structure; firm; common fine and medium dark concretions; few fine pores; strongly acid.

Range in Characteristics

Solum thickness: 48 to 72 inches or more
Depth to fragipan: 20 to 36 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam
Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
Reaction—very strongly acid or strongly acid, except where limed or affected by irrigation water

Eg horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2
Texture—silt loam
Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
Reaction—very strongly acid to strongly acid

Btxg horizon:
Color—hue of 10YR, value of 5 to 7, and chroma of 1 or 2; or no dominant color and variegated in shades of gray, brown, and yellow
Texture—silt loam or silty clay loam
Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
Reaction—very strongly acid to strongly acid

BCg horizon:
Color—hue of 10YR, value of 5 to 7, and chroma of 1 to 3
Texture—silt loam
Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
Reaction—strongly acid to moderately acid

Hillemann Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Very slow
Parent material: Loess
Landform position: Loess covered terraces
Commonly associated soils: Calhoun, Calloway, Grenada, Grubbs, and Tichnor
Slope range: 0 to 3 percent
Taxonomic class: Fine-silty, mixed, active, thermic Albic Glossic Natraqualfs

Typical Pedon

Hillemann silt loam, 0 to 1 percent slopes, in a cultivated field in the NE$^1/_4$NW$^1/_4$NW$^1/_4$ sec. 28, T. 5 N., R. 1 W.

Ap1—0 to 3 inches; grayish brown (10YR 5/2) silt loam; massive in place parting to weak fine granular structure; friable; many medium and coarse roots; many very fine and fine pores; common medium distinct strong brown (7.5YR 5/6) iron accumulations lining root channels; neutral; abrupt smooth boundary.

Ap2—3 to 8 inches; gray (10YR 5/1) silt loam; massive in place parting to weak fine granular structure; friable; common medium and coarse roots; many very fine and fine pores; many medium distinct brown (7.5YR 4/4) and light yellowish brown (10YR 6/4) iron accumulations lining root channels; mildly alkaline; abrupt smooth boundary.

Eg—8 to 15 inches; gray (10YR 6/1) silt loam, weak medium subangular blocky structure; friable; few fine roots; many very fine and fine pores; common medium distinct brown (7.5YR 4/4) and yellowish brown (10YR 5/6) iron accumulations in matrix; few medium faint light gray (10YR 7/1) iron depletions in matrix; moderately acid; abrupt smooth boundary.

Bt—15 to 23 inches; 50 percent reddish brown (2.5YR 4/4) and 50 percent gray (10YR 5/1) silty clay; weak medium prismatic structure parting to moderate fine and medium blocky structure; firm; few fine roots; common very fine pores; many faint gray (10YR 5/1) clay films on faces of most peds; light gray (10YR 7/1) fingers of silt (clay depletions) make up about 5 percent of the matrix; areas of the matrix that are reddish brown are irregularly-shaped masses of iron accumulation, and the areas of gray are iron depletions; very strongly acid; clear wavy boundary.

Btg—23 to 28 inches; light brownish gray (10YR 6/2) silty clay loam; weak coarse subangular blocky structure; firm; few fine roots; common very fine pores; few faint gray (10YR 5/1) clay films on faces of some peds; common medium distinct yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/4) iron accumulations throughout matrix; very strongly acid; clear wavy boundary.

B/E1—28 to 40 inches; (Btgn) light brownish gray (10YR 6/2) silt loam; weak medium prismatic structure parting to weak medium and coarse subangular blocky; firm; light gray (10YR 7/1) silt tongues (Eg) about 2 inches wide between prisms starting in the lower part of the horizon making up about 15 percent of the matrix; few fine roots; common very fine pores; few faint gray (10YR 5/1) clay films on faces of some peds; white (10YR 8/1) clay depletions on faces of some peds; common medium distinct light olive brown (2.5Y 5/4) and few medium prominent yellowish red (5YR 4/6) iron accumulations throughout Btgn part; very strongly acid; clear wavy boundary.

B/E2—40 to 57 inches; (Btgn) grayish brown (10YR 5/2) silt loam; weak coarse prismatic structure parting to moderate medium blocky; firm; light gray (10YR 7/1) silt tongues (Eg) about 2 inches wide between prisms extend through the horizon and make up about 20 percent of the matrix; few fine roots; many very fine pores; many faint gray (10YR 5/1) clay films on faces of peds and lining pores; white (10YR 8/1) clay depletions on faces of some peds; common medium distinct light olive brown (2.5Y 5/4) and few medium prominent yellowish red (5YR 4/6) iron accumulations throughout Btgn part; mildly alkaline; clear wavy boundary.

B/E3—57 to 70 inches; (Btgn) light brownish gray (10YR 6/2) silty clay loam; weak coarse prismatic structure parting to moderate medium blocky; very firm; light gray (10YR 7/1) silt tongues (Eg) about 2 inches wide between prisms make up about 15 percent of the matrix; many very fine pores; few fine roots; few faint gray (10YR 5/1) clay films on faces of some peds and lining pores in Btgn part; few distinct dark gray (10YR 4/1) clay films around margin of tongues; white (10YR 8/1) clay depletions on faces of some peds; common coarse prominent (5YR 4/6) and common medium distinct

yellowish brown (10YR 5/6) iron accumulations throughout Btgn part; moderately alkaline; gradual wavy boundary.

Btgn—70 to 80 inches; gray (10YR 5/1) silty clay loam; strong medium angular and subangular blocky structure; very firm; few fine and medium smooth slickensides; few fine roots; common very fine pores; many faint gray (10YR 5/1) clay films on faces of most peds; common white (10YR 8/1) clay depletions on vertical faces of peds; many coarse distinct yellowish brown (10YR 5/6) and few medium distinct strong brown (7.5YR 5/6) iron accumulations throughout; moderately alkaline.

Range in Characteristics

Solum thickness: 48 to 80 inches

Ap horizon:
- Color—hue of 10YR, value of 4 or 5, and chroma of 1 to 3
- Texture—silt loam
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—strongly acid or moderately acid, except in areas which have been limed or affected by irrigation water

E horizon and E part of the B/E horizon:
- Color—hue of 10YR, value of 5 to 7, and chroma of 1 or 2
- Texture—silt or silt loam
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—strongly acid or moderately acid, except in areas which have been limed or affected by irrigation water

Bt horizon:
- Color—hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 4 or 6; or no dominant color and variegated in shades of red and gray
- Texture—silty clay or silty clay loam
- Redoximorphic concentrations and depletions—shades of brown, red, and gray
- Reaction—very strongly acid to moderately acid

Btg horizon:
- Color—hue of 10YR, value of 5 to 7, and chroma of 1 or 2
- Texture—silty clay, silty clay loam, or silt loam
- Redoximorphic concentrations and depletions—shades of brown, red, and gray
- Reaction—very strongly acid to moderately acid

Btgn and B part of the B/E horizon:
- Color—hue of 10YR, value of 5 to 7, and chroma of 1 or 2
- Texture—silty clay loam or silt loam
- Redoximorphic concentrations and depletions—shades of brown, red, and gray
- Reaction—very strongly acid to moderately alkaline

BC horizon (where present):
- Color—hue of 10YR, value of 5 to 7, and chroma of 1 or 2
- Texture—silt loam or silty clay loam
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—slightly acid to moderately alkaline

Jackport Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Very slow
Parent material: Clayey alluvium
Landform position: Terraces
Commonly associated soils: Bonn, Foley, Forestdale, Grubbs, and Overcup
Slope range: 0 to 1 percent
Taxonomic class: Fine, smectitic, thermic Chromic Epiaquerts

Typical Pedon

Jackport silty clay loam, 0 to 1 percent slopes, in a rice field in the NE¼NE¼NE¼ sec. 3, T. 6 N., R. 2 W.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silty clay loam; weak fine subangular blocky structure; firm; common very fine and few fine roots; moderately acid; abrupt smooth boundary.

Bg—5 to 12 inches; grayish brown (10YR 5/2) clay; moderate medium subangular blocky structure; very firm; few fine roots; common fine prominent strong brown (7.5YR 5/6) iron accumulations in matrix; strongly acid; clear wavy boundary.

Bssg1—12 to 29 inches; grayish brown (10YR 5/2) clay; moderate medium blocky structure; very firm; few fine roots; few fine manganese concretions; few slickensides; shiny pressure faces on peds; common medium prominent strong brown (7.5YR 5/6) iron accumulations in matrix; very strongly acid; clear wavy boundary.

Bssg2—29 to 58 inches; grayish brown (2.5Y 5/2) silty clay; strong coarse blocky structure; very firm; few slickensides; few fine manganese concretions; shiny pressure faces on peds; common medium prominent dark yellowish brown (10YR 4/4) iron accumulations in matrix; slightly acid; gradual wavy boundary.

BCg—58 to 72 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium subangular blocky structure; firm; common medium distinct yellowish brown (10YR 5/4) iron accumulations in matrix; few medium carbonate concretions; slightly alkaline.

Range in Characteristics

Solum thickness: 50 to 70 inches or more

Ap horizon:
- Color—hue of 10YR, value of 4 or 5, and chroma of 1 or 2
- Texture—silty clay loam
- Reaction—very strongly acid to slightly acid

Bg horizon:
- Color—hue of 10YR, 2.5Y, or 5Y, value of 5 or 6, and chroma of 1 or 2
- Texture—clay or silty clay
- Redoximorphic concentrations and depletions—shades of brown, red, and gray
- Reaction—very strongly acid or strongly acid

Bssg horizon:
- Color—hue of 10YR, 2.5Y, or 5Y, value of 5 or 6, and chroma of 1 or 2
- Texture—clay or silty clay
- Redoximorphic concentrations and depletions—shades of brown, red, and gray
- Reaction—very strongly acid or strongly acid in the upper part and moderately acid to slightly alkaline in the lower part

BCg horizon:
- Color—hue of 10YR, 2.5Y, or 5Y, value of 5 or 6, and chroma of 1 or 2
- Texture—silty clay or silty clay loam
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—slightly acid to moderately alkaline

Kobel Series

Depth class: Very deep
Drainage class: Poorly drained and very poorly drained
Permeability: Very slow
Parent material: Clayey alluvium
Landform position: Flood plains, oxbows, and backswamps
Commonly associated soils: Taylorbay, Tipp, and Yancopin
Slope range: 0 to 1 percent
Taxonomic class: Fine, smectitic, nonacid, thermic Vertic Endoaquepts

Typical Pedon

Kobel silty clay loam, 0 to 1 percent slopes, frequently flooded, in a rice field in the NW$^1/_4$SE$^1/_4$SW$^1/_4$ sec. 12, R. 4 W., T. 7 N.

Ap—0 to 4 inches; very dark grayish brown (10YR 3/2) silty clay loam; weak fine subangular blocky structure; firm; plastic; common fine roots; slightly acid; clear smooth boundary.
Bg1—4 to 16 inches; dark gray (10YR 4/1) clay; moderate medium subangular blocky structure; firm; plastic; few fine roots; common medium distinct yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/4) iron accumulations; few fine concretions; neutral; clear wavy boundary.
Bg2—16 to 41 inches; gray (10YR 5/1) clay; strong medium subangular blocky structure; firm; plastic; few fine roots; common medium distinct yellowish brown (10YR 5/4) iron accumulations; few fine concretions; neutral; gradual wavy boundary.
Bg3—41 to 53 inches; gray (10YR 5/1) clay; moderate medium subangular blocky structure; firm; plastic; common fine and medium distinct yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/4) iron accumulations; few fine concretions; neutral; gradual wavy boundary.
Bg4—53 to 60 inches; gray (10YR 5/1) silty clay loam; moderate medium subangular blocky structure; firm; common medium distinct yellowish brown (10YR 5/6) iron accumulations; few fine concretions; neutral; clear wavy boundary.
Cg—60 to 72 inches; gray (10YR 5/1) clay loam; structureless, massive; firm; common medium distinct dark yellowish brown (10YR 4/4) and strong brown (7.5YR 5/6) iron accumulations; common fine and medium concretions; neutral.

Range in Characteristics

Solum thickness: 40 to 60 inches

Ap horizon:
- Color—hue of 10YR, value of 3 or 4, and chroma of 1 or 2 or value of 5 and chroma of 1
- Texture—silty clay loam
- Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
- Reaction—moderately acid to neutral

Bg horizon:
- Color—hue of 10YR, 2.5Y, or 5Y, value of 4 to 6, and chroma of 1
- Texture—silty clay loam, silty clay, or clay
- Redoximorphic concentrations and depletions—shades of brown, red, yellow, and gray
- Reaction—slightly acid to slightly alkaline

C horizon:
Color—hue of 10YR, 2.5Y, or 5Y, value of 4 to 6, and chroma of 1
Texture—silty clay loam, sandy clay, clay loam, or silty clay
Redoximorphic concentrations and depletions—shades of brown, red, yellow, and gray
Reaction—neutral to moderately alkaline

Lafe Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Very slow
Parent material: Silty sediments derived from loess
Landform position: Terraces
Commonly associated soils: Bonn, Foley, McCrory, and Tuckerman
Slope range: 0 to 1 percent
Taxonomic class: Fine-silty, mixed, active, thermic Glossaquic Natrudalfs

Typical Pedon

Lafe silt loam, 0 to 1 percent slopes, in an idle field in the NW¼SE¼NE¼ sec. 17, T. 8 N., R. 1 W.

Ap—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; many fine and medium roots; few fine and medium round iron-manganese concretions; moderately acid; abrupt smooth boundary.
Eg—4 to 8 inches; light brownish gray (10YR 6/2) silt loam; weak medium and coarse subangular blocky structure; friable; common fine roots; few fine distinct dark yellowish brown (10YR 4/4) iron accumulations; few fine and medium round iron-manganese concretions; slightly acid; abrupt smooth boundary.
B/E—8 to 22 inches; about 80 percent (Btn) brown (10YR 5/3) silty clay loam; weak coarse prismatic structure parting to moderate fine and medium subangular blocky structure; firm; few distinct clay films on faces of peds and lining pores; about 20 percent (Eg) gray (10YR 6/1) silt loam tongues and interfingers between prisms; weak coarse subangular blocky structure; friable; few fine roots; common fine and medium tubular pores; few fine distinct light brownish gray (10YR 6/2) iron depletions; common dark brown stains along old root channels; moderately alkaline; clear wavy boundary.
Btkn1—22 to 43 inches; pale brown (10YR 6/3) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds and lining pores; few very fine roots; common fine and medium tubular pores; few fine distinct light brownish gray (10YR 6/2) iron depletions; yellowish brown (10YR 5/6) iron accumulations; few fine and medium iron-manganese concretions; light gray (10YR 7/2) clay depletions on vertical prism faces; few medium and coarse hard calcium carbonate concretions; strongly alkaline; clear wavy boundary.
Btkn2—43 to 60 inches; grayish brown (10YR 5/2) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds and lining pores; few fine distinct yellowish brown (10YR 5/6) iron accumulations; common fine pores; few fine iron-manganese concretions; light gray (10YR 7/2) clay depletions on vertical prism faces; common medium and coarse hard calcium carbonate concretions; strongly alkaline; gradual wavy boundary.
BCkn—60 to 72 inches; light brownish gray (10YR 6/2) silt loam; weak coarse subangular blocky structure; friable; few fine pores; common medium distinct yellowish brown (10YR 5/4) iron accumulations; few fine iron-manganese concretions and soft nodules; many coarse and very coarse calcium carbonate concretions; strongly alkaline.

Range in Characteristics

Solum thickness: 40 to 80 inches or more

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam
Reaction—strongly acid to slightly acid

E horizon and E part of the B/E horizon:
Color—hue of 10YR, value of 5 to 7, and chroma of 1 or 2
Texture—silt loam
Redoximorphic concentrations and depletions—shades of brown
Reaction—strongly acid to slightly acid

Btkn horizon and B part of the B/E horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3, 4, or 6
Texture—silt loam or silty clay loam
Redoximorphic concentrations and depletions—shades of brown and gray
Reaction—slightly alkaline to strongly alkaline

BCkn horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 2, 3, 4, or 6
Texture—silt loam or silty clay loam
Redoximorphic concentrations and depletions—shades of brown and gray
Reaction—slightly alkaline to strongly alkaline

McCrory Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderately slow
Parent material: Loamy alluvium
Landform position: Holocene terraces
Commonly associated soils: Bonn, Foley, Lafe, and Tuckerman
Slope range: 0 to 1 percent
Taxonomic class: Fine-loamy, mixed, active, thermic Albic Glossic Natraqualfs

Typical Pedon

McCrory fine sandy loam, 0 to 1 percent slopes, in a cultivated field in the SE¼SE¼NE¼ sec. 5, T. 8 N., R. 3 W.

Ap1—0 to 3 inches; brown (10YR 5/3) fine sandy loam; moderate medium granular structure; friable; few fine pores; many fine roots; few fine distinct yellowish brown (10YR 5/6) iron accumulations on faces of peds; strongly acid; clear smooth boundary.

Ap2—3 to 7 inches; grayish brown (10YR 4/3) fine sandy loam; weak medium subangular blocky structure; friable; common fine pores; common fine roots; common medium distinct yellowish brown (10YR 5/6) iron accumulations on faces of peds; dark yellowish brown (10YR 4/4) iron accumulations in some root channels and pores; very strongly acid; clear smooth boundary.

Eg—7 to 15 inches; grayish brown (10YR 5/2) fine sandy loam; weak medium subangular blocky structure; friable; few fine pores; few fine roots; common medium distinct brown (10YR 4/3) and few fine distinct yellowish brown (10YR 5/6) iron accumulations on faces of peds; dark yellowish brown (10YR 4/4) iron accumulations in some root channels and pores; few fine and medium dark brown iron-manganese concretions; moderately acid; clear wavy boundary.

Btg/Eg—15 to 20 inches; (Btg) light brownish gray (10YR 6/2) and grayish brown (10YR 5/2) fine sandy loam; weak medium subangular blocky structure; firm; few fine and few medium pores; few fine roots; few faint grayish brown (10YR 5/2) clay films on faces of some peds and lining some pores and root channels; many medium and coarse distinct strong brown (7.5YR 5/8) iron accumulations in matrix; few fine black to brown iron-manganese concretions; (Eg) pockets and streaks of faint gray (10YR 6/1) silt loam clay depletions on vertical ped faces making up about 10 percent of horizon; neutral; clear wavy boundary.

Btgn1—20 to 28 inches; light brownish gray (10YR 6/2) fine sandy loam; weak coarse prismatic parting to weak medium subangular blocky structure; friable; few fine pores; few fine roots; few faint clay films on faces of some peds and lining some pores; common medium faint grayish brown (10YR 5/2) and common medium and coarse strong brown (7.5YR 5/6, 5/8) iron accumulations in matrix; common medium black (10YR 2/1) manganese accumulations on faces of some peds and lining some pores; few fine and medium black to brown hard iron-manganese concretions; slightly alkaline; clear smooth boundary.

Btgn2—28 to 36 inches; grayish brown (10YR 5/2) fine sandy loam; weak coarse prismatic parting to weak medium subangular blocky structure; firm; few fine pores; few fine roots; few faint clay films on faces of some peds and lining some pores and root channels; common fine and medium distinct brown (10YR 4/3) and few fine distinct yellowish brown (10YR 5/6) iron accumulations in matrix; common medium black to brown iron-manganese concretions; moderately alkaline; clear smooth boundary.

Btgn3—36 to 51 inches; grayish brown (10YR 5/2) sandy clay loam; weak coarse prismatic parting to weak medium subangular blocky structure; firm; few fine pores; few fine roots; many distinct clay films on faces of some peds and lining some pores and root channels; few fine and medium distinct brown (10YR 4/3) and few fine distinct yellowish brown (10YR 5/6) iron accumulations in matrix; many fine and medium black (10YR 2/1) manganese accumulations on faces of some peds and interiors of prisms; many medium black to brown iron-manganese concretions; strongly alkaline; clear smooth boundary.

Btgn4—51 to 65 inches; grayish brown (2.5Y 5/2) fine sandy loam; weak coarse subangular blocky structure; firm; common fine pores; few faint clay films on faces of some peds and lining some pores; few medium distinct brown (10YR 4/3) iron accumulations in matrix; common fine and medium black (10YR 2/1) manganese

accumulations on faces of some peds; few fine black to brown iron-manganese concretions; few fine and medium calcium carbonate concretions; strongly alkaline; gradual wavy boundary.

Btgn5—65 to 70 inches; grayish brown (2.5Y 5/2) sandy clay loam; weak coarse subangular blocky structure; firm; common fine pores; few faint clay films on faces of some peds and lining some pores; few medium distinct brown (10YR 4/3) iron accumulations in matrix; common fine and medium black (10YR 2/1) manganese accumulations on faces of some peds; few fine and medium black to brown iron-manganese concretions; few fine and medium calcium carbonate concretions; common white (10YR 8/1) powdery, barite crystals; moderately alkaline; clear wavy boundary.

C1—70 to 83 inches; yellowish brown (10YR 5/6), pale brown (10YR 6/3) and brown (10YR 5/3) fine sand; structureless, single grained; friable; faint bedding planes; a continuous band of strong brown (7.5YR 5/8) iron accumulations at contact with horizon above; few iron-manganese coatings of some sand grains; moderately alkaline; clear smooth boundary.

C2—83 to 98 inches; pale brown (10YR 6/3) and brown (10YR 5/3) fine sand; structureless, single grained; friable; few iron-manganese coatings of some sand grains; common coarse faint grayish brown (10YR 5/2) iron depletions in matrix; slightly alkaline.

Range in Characteristics

Solum thickness: 40 to 80 inches or more

Ap horizon:
- Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
- Texture—fine sandy loam
- Reaction—strongly acid to slightly acid

Eg horizon and Eg part of the Btg/Eg horizon:
- Color—hue of 10YR, value of 5 or 6, and chroma 1 or 2
- Texture—fine sandy loam
- Redoximorphic concentrations and depletions—shades of brown, gray, and yellow
- Reaction—strongly acid to slightly acid

Btg horizon:
- Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma 1 or 2
- Texture—sandy clay loam, loam, or fine sandy loam
- Redoximorphic concentrations and depletions—shades of brown, gray, and yellow
- Reaction—neutral to strongly alkaline

Btgn horizon:
- Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma 1 or 2
- Texture—sandy clay loam, loam, or fine sandy loam
- Redoximorphic concentrations and depletions—shades of brown, gray, and yellow
- Reaction—neutral to strongly alkaline

BCg horizon (where present):
- Color— hue of 10YR or 2.5Y, value of 5 or 6, and chroma 1 or 2
- Texture—fine sandy loam, loam, or sandy loam
- Redoximorphic concentrations and depletions—shades of brown, gray, and yellow
- Reaction—neutral to strongly alkaline

C horizon:
- Color— hue of 10YR or 2.5Y, value of 5 or 6, and chroma 2, 3, 4, or 6
- Texture—fine sandy loam, loamy fine sand, sandy loam, or fine sand
- Redoximorphic concentrations and depletions—shades of brown, gray, and yellow
- Reaction—neutral to strongly alkaline

Oaklimeter Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Parent material: Silty alluvium
Landform position: Flood plains and low stream terraces
Commonly associated soils: Calloway, Grenada, and Tichnor
Slope range: 0 to 2 percent
Taxonomic class: Coarse-silty, mixed, active, thermic Fluvaquentic Dystrochrepts

Typical Pedon

Oaklimeter silt loam, 0 to 2 percent slopes, occasionally flooded, in a cultivated field in the $SW^1/_4NW^1/_4SW^1/_4$ sec. 8, T. 5 N., R. 2 W.

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; common fine roots; moderately acid; clear smooth boundary.

Bw1—6 to 19 inches; brown (7.5YR 4/4) silt loam; weak medium subangular blocky structure; very friable; few fine roots; few fine tubular pores; few

fine distinct pale brown (10YR 6/3) iron depletions; strongly acid; clear wavy boundary.
Bw2—19 to 30 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; very friable; few fine roots; common fine tubular pores; few fine distinct pale brown (10YR 6/3) and grayish brown (10YR 5/2) iron depletions; strongly acid; gradual wavy boundary.
BEb—30 to 60 inches; yellowish brown (10YR 5/4) and light brownish gray (10YR 6/2) loam; weak coarse prismatic structure parting to weak medium subangular blocky structure; friable; few fine tubular pores; common fine black and brown stains; few fine iron-manganese concretions; common pockets of uncoated sand grains; very strongly acid; gradual wavy boundary.
Btgb—60 to 72 inches; light brownish gray (10YR 6/2) silt loam; weak very coarse prismatic structure parting to weak medium subangular blocky structure; friable; few fine tubular pores; many medium distinct dark yellowish brown (10YR 4/4) iron accumulations; common fine black and brown stains; few fine iron-manganese concretions; few faint clay films on ped faces and lining pores; pockets of gray (10YR 6/1) silt loam between prisms; very strongly acid.

Range in Characteristics

Solum thickness: 60 to 80 inches or more

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—silt loam
Reaction—very strongly acid or strongly acid, except where surface layers have been limed

Bw horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 or 4
Texture—silt loam or loam
Redoximorphic concentrations and depletions—shades of gray and brown
Reaction—very strongly acid or strongly acid

BEb horizon:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 to 4
Texture—silt loam or loam
Redoximorphic concentrations and depletions—shades of brown and gray
Reaction—very strongly acid or strongly acid

Btgb horizon:
Color—hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2
Texture—silt loam or silty clay loam
Redoximorphic concentrations and depletions—shades of brown and gray
Reaction—very strongly acid or strongly acid

Overcup Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Very slow
Parent material: Alluvium
Landform position: Terraces
Commonly associated soils: Bonn, Foley, Forestdale, Grubbs, and Jackport
Slope range: 0 to 1 percent
Taxonomic class: Fine, smectitic, thermic Vertic Albaqualfs

Typical Pedon

Overcup silt loam, 0 to 1 percent slopes, in an idle field in the NW¼NE¼SE¼ sec. 13, T. 8 N., R. 2 W.

Ap—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; weak medium and coarse subangular blocky structure; firm; common fine and very fine roots; common fine and very fine pores; common fine distinct yellowish brown (10YR 5/8) iron accumulations; few fine distinct light brownish gray (10YR 6/2) iron depletions; many fine and medium soft round iron-manganese nodules; strongly acid; abrupt smooth boundary.
Eg—4 to 8 inches; light gray (10YR 7/1) silt loam; weak coarse subangular blocky structure; firm; few fine and very fine roots; common fine and very fine pores; common medium distinct yellowish brown (10YR 5/6) iron accumulations; many fine and medium soft round iron-manganese nodules; strongly acid; clear wavy boundary.
Btg1—8 to 22 inches; grayish brown (2.5Y 5/2) silty clay; moderate fine angular blocky structure; firm; plastic and sticky; few fine and very fine roots; common fine and very fine pores; many faint clay films on faces of peds and lining pores; few slickensides that do not intersect; light gray (10YR 7/1) clay depletions along old vertical cracks; few medium distinct strong brown (7.5YR 5/6) iron accumulations in matrix and around old root channels; common fine and medium soft round iron-manganese nodules; very strongly acid; gradual wavy boundary.
Btg2—22 to 44 inches; dark grayish brown (2.5Y 4/2) silty clay; moderate fine angular blocky structure; firm; plastic and sticky; few fine and very fine roots; common fine and very fine pores; many

distinct clay films on faces of peds and lining pores; few slickensides that do not intersect; few fine distinct yellowish brown (10YR 4/6) iron accumulations; common fine and medium soft round iron-manganese nodules; very strongly acid; gradual smooth boundary.

Btg3—44 to 61 inches; grayish brown (2.5Y 5/2) silty clay; moderate fine angular blocky structure; firm; slightly sticky and slightly plastic; few fine and very fine roots; common fine and very fine pores; many faint clay films on faces of peds and lining pores; few medium distinct yellowish brown (10YR 4/6) iron accumulations; few fine distinct light gray (10YR 7/2) iron depletions; common fine and medium soft round iron-manganese nodules; few medium prominent black (10YR 2/1) manganese accumulations on faces of peds; very strongly acid; gradual smooth boundary.

BCg—61 to 72 inches; light brownish gray (2.5Y 6/2) silty clay loam; moderate medium subangular blocky structure; firm; common fine and very fine pores; common medium distinct dark yellowish brown (10YR 4/4) iron accumulations; common fine and medium soft round iron-manganese nodules; many medium prominent black (10YR 2/1) manganese accumulations on faces of peds; strongly acid.

Range in Characteristics

Solum thickness: 60 to 72 inches or more

Ap horizon:
- Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
- Texture—silt loam
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—strongly acid or moderately acid, except in areas which have been limed or affected by irrigation water

E horizon:
- Color—hue of 10YR, value of 5 to 7, and chroma of 1 or 2
- Texture—silt loam
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—strongly acid or moderately acid, except in areas which have been limed or affected by irrigation water

Btg horizon:
- Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2; or hue of 2.5Y, value of 4 or 5, and chroma of 2
- Texture—silty clay or clay
- Redoximorphic concentrations and depletions—shades of brown, red, and gray
- Reaction—very strongly acid to slightly acid

BCg horizon:
- Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2; or hue of 2.5Y, value of 5 or 6, and chroma of 2
- Texture—silty clay loam or silty clay
- Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
- Reaction—strongly acid to moderately alkaline

Patterson Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately rapid
Parent material: Loamy alluvium
Landform position: Low terraces and depressions
Commonly associated soils: Bulltown, Tuckerman, and Wiville
Slope range: 0 to 2 percent
Taxonomic class: Fine-loamy, mixed, active, thermic Typic Endoaqualfs

Typical Pedon

Patterson fine sandy loam, 0 to 2 percent slopes, in a cultivated field in the SW¼SE¼NE¼ sec. 4, T. 8 N., R. 3 W.

Ap1—0 to 6 inches; dark brown (10YR 4/3) fine sandy loam; moderate fine and medium granular structure; very friable; many fine roots; common fine pores; few fine round hard iron-manganese concretions; very strongly acid; abrupt smooth boundary.

Ap2—6 to 10 inches; brown (10YR 5/3) fine sandy loam; moderate medium subangular blocky structure grading to moderate coarse platy in the lower 2 inches; friable in the subangular blocky part and firm in the platy part; many fine roots; common fine pores; few fine faint light yellowish brown (10YR 6/4) iron depletions on faces of some peds; few fine round hard iron-manganese concretions; very strongly acid; clear smooth boundary.

Eg1—10 to 16 inches; grayish brown (10YR 5/2) fine sandy loam; weak medium and coarse subangular blocky structure; friable; common fine roots; common fine pores; few fine distinct dark yellowish brown (10YR 4/4, 4/6) iron accumulations and few fine faint pale brown (10YR 6/3) iron depletions in matrix; few medium round hard iron-manganese

concretions; very strongly acid; clear smooth boundary.

Eg2—16 to 33 inches; grayish brown (10YR 5/2) fine sandy loam; weak coarse subangular blocky structure; very friable; common fine roots; many medium and coarse pores; few fine distinct dark yellowish brown (10YR 4/4, 4/6) iron accumulations and few fine faint pale brown (10YR 6/3) iron depletions in matrix; few medium round hard iron-manganese concretions; very strongly acid; gradual wavy boundary.

Btg1—33 to 43 inches; dark gray (10YR 4/1) sandy clay loam; moderate medium and coarse subangular blocky structure; firm; common fine roots; common fine and medium pores; common distinct very dark grayish brown (10YR 3/2) clay films on faces of peds and lining pores; few medium brown (10YR 5/3) clay depletions on faces of some peds; common medium distinct dark yellowish brown (10YR 4/4, 4/6) iron accumulations and few fine faint pale brown (10YR 6/3) iron depletions in matrix; few fine round hard iron-manganese concretions; very strongly acid; gradual smooth boundary.

Btg2—43 to 53 inches; dark gray (10YR 4/1) sandy clay loam; weak coarse subangular blocky structure; firm; few fine roots; few fine pores; few distinct very dark grayish brown (10YR 3/2) clay films on faces of peds and lining pores; common medium distinct dark yellowish brown (10YR 4/4, 4/6) iron accumulations and few fine faint pale brown (10YR 6/3) iron depletions in matrix; few fine round hard iron-manganese concretions; few fine prominent black (10YR 2/1) manganese accumulations on faces of peds; strongly acid; gradual smooth boundary.

BCg—53 to 67 inches; dark gray (10YR 4/1) fine sandy loam; weak coarse subangular blocky structure; friable; few fine pores; common medium distinct dark yellowish brown (10YR 4/4) iron accumulations and few fine distinct brown (10YR 5/3) and grayish brown (10YR 5/2) iron depletions in matrix; few fine iron-manganese concretions; common medium prominent black (10YR 2/1) manganese accumulations on faces of peds; strongly acid; gradual wavy boundary.

C1—67 to 80 inches; brown (10YR 4/3) loamy fine sand; structureless, massive; friable; common faint dark yellowish brown (10YR 4/4) loamy fine sand bedding planes 1/8 to 1/4 inch thick; common coarse distinct gray (10YR 5/1) iron depletions and common medium distinct dark yellowish brown (10YR 4/6) iron accumulations throughout matrix; common fine and very fine prominent black (10YR 2/1) manganese accumulations throughout matrix; moderately acid; gradual wavy boundary.

C2—80 to 90 inches; brown (10YR 4/3) loamy fine sand; structureless, massive; very friable; common faint brown (10YR 5/2) loamy fine sand bedding planes 1/8 to 1/4 inch thick; slightly acid.

Range in Characteristics

Solum thickness: 50 to 70 inches or more

Ap horizon:
- Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
- Texture—fine sandy loam
- Reaction—very strongly acid to slightly acid

Eg horizon:
- Color—hue of 10YR, value of 5 or 6, and chroma of 2
- Texture—fine sandy loam, sandy loam, or loamy fine sand
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—very strongly acid or strongly acid

Btg horizon:
- Color—hue of 10YR, value of 4 or 5, and chroma of 2 or value of 4 and chroma of 1
- Texture—fine sandy loam, sandy clay loam, or sandy loam
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—very strongly acid or strongly acid

BCg horizon:
- Color—hue of 10YR, value of 4 or 5, and chroma of 2 or value of 4 and chroma of 1
- Texture—fine sandy loam or sandy loam
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—very strongly acid or strongly acid

C horizon:
- Color— hue of 10YR, value of 4 to 6, and chroma of 1 to 3
- Texture— sandy loam, fine sandy loam, loamy fine sand or fine sand
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—very strongly acid to neutral

Taylorbay Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow

Parent material: Silty alluvium
Landform position: Flood plains
Commonly associated soils: Kobel, Tipp, and Yancopin
Slope range: 0 to 3 percent
Taxonomic class: Fine-silty, mixed, active, thermic Cumulic Hapludolls

Typical Pedon

Taylorbay silt loam, 0 to 3 percent slopes, frequently flooded, in a cultivated field in the NW¼SW¼NE¼ sec. 13, T. 9 N., R. 4 W.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam; moderate fine granular structure; very friable; many fine and medium roots; common fine and medium pores; slightly acid; clear smooth boundary.
A—8 to 25 inches; very dark grayish brown (10YR 3/2) silt loam; weak medium and coarse subangular blocky structure; friable; common fine and medium roots; common fine and medium pores; slightly acid; gradual wavy boundary.
Bw1—25 to 32 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; few fine roots; common fine and medium pores; few fine faint brown (10YR 5/3) iron depletions on faces of some peds; few fine black iron-manganese concretions; slightly acid; gradual smooth boundary.
Bw2—32 to 47 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; few fine roots; common fine and medium pores; common fine distinct brown (10YR 5/3) iron depletions on faces of some peds; few fine black iron-manganese concretions; slightly acid; gradual smooth boundary.
Bw3—47 to 56 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine and medium subangular blocky structure; friable; common fine and medium pores; common medium distinct brown (10YR 5/3) iron depletions on faces of some peds; few fine black iron-manganese concretions; slightly acid; clear smooth boundary.
C—56 to 72 inches; brown (10YR 4/3) silty clay loam; structureless, massive; friable; few fine and medium pores; common medium distinct grayish brown (10YR 5/2) iron depletions on faces of some peds; few fine black iron-manganese concretions; neutral.

Range in Characteristics

Solum thickness: 50 to 80 inches or more

Ap and A horizons:
Color—hue of 10YR or 7.5YR, value of 3, and chroma of 2 or 3
Texture—Silt loam
Reaction—slightly acid to slightly alkaline

Bw horizon:
Color—hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 3 or 4
Texture—silt loam or silty clay loam
Redoximorphic concentrations and depletions—shades of brown
Reaction—slightly acid to slightly alkaline

C horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—silt loam, silty clay loam, loam, or clay loam
Redoximorphic concentrations and depletions—shades of brown or gray
Reaction—slightly acid to slightly alkaline

Teksob Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Loamy alluvium
Landform position: Terraces
Commonly associated soils: Amagon, Askew, Dubbs, Dundee, and Tuckerman
Slope range: 0 to 8 percent
Taxonomic class: Fine-loamy, mixed, active, thermic Typic Hapludalfs

Typical Pedon

Teksob loam, 0 to 1 percent slopes, in a cultivated field in the SW¼SE¼SW¼ sec. 11, T. 8 N., R. 2 W.

Ap1—0 to 5 inches; brown (7.5YR 4/4) loam; weak fine and medium granular structure; friable; pockets and streaks of yellowish brown (10YR 5/4) loam; common fine and medium roots; common fine pores; neutral; abrupt smooth boundary.
Ap2—5 to 10 inches; dark brown (7.5YR 3/4) loam; weak coarse subangular blocky structure; friable; few pockets of yellowish brown (10YR 5/4) loam; few fine and very fine roots; common fine and medium pores; neutral; abrupt smooth boundary.
BA—10 to 20 inches; brown (7.5YR 4/4) and dark yellowish brown (10YR 4/4) loam; weak medium and coarse subangular blocky structure; friable; few fine and very fine roots; common fine and medium pores; neutral; gradual smooth boundary.

Bt1—20 to 27 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; friable; few fine and very fine roots; common fine and medium pores; common faint clay films on faces of some peds and lining some pores; few fine distinct black iron-manganese accumulations on faces of some peds and lining pores; neutral; gradual smooth boundary.
Bt2—27 to 40 inches; strong brown (7.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine and very fine roots; common fine and very fine pores; many distinct clay films on faces of most peds and lining pores; few fine distinct black iron-manganese accumulations on faces of some peds and lining pores; moderately acid; gradual smooth boundary.
BC—40 to 51 inches; strong brown (7.5YR 4/6) fine sandy loam; weak medium and coarse subangular blocky structure; very friable; few fine and medium pores; strongly acid; clear smooth boundary.
C1—51 to 65 inches; strong brown (7.5YR 4/6) fine sand; structureless, single grained; loose; strongly acid; gradual smooth boundary.
C2—65 to 80 inches; dark yellowish brown (10YR 4/6) fine sand; structureless, single grained; loose; common medium distinct pale brown (10YR 6/3) iron depletions; moderately acid.

Range in Characteristics

Solum thickness: 40 to 60 inches or more
Reaction—strongly acid to neutral throughout

Ap horizon:
Color—hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 3 or 4
Texture—loam

BA or AB horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 or 6
Texture—fine sandy loam, sandy loam, or loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 or 6
Texture—loam, sandy clay loam, or clay loam

BC horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4, 6, or 8
Texture—fine sandy loam, sandy loam, or loam

C horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 6 or 8
Texture—fine sandy loam, sandy loam, loamy sand, loamy fine sand, or fine sand
Redoximorphic concentrations and depletions—shades of brown or gray

Tichnor Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderately slow
Parent material: Silty alluvium
Landform position: Flood plains
Commonly associated soils: Calhoun, Calloway, Grenada, Henry, Hillemann, and Oaklimeter
Slope range: 0 to 1 percent
Taxonomic class: Fine-silty, mixed, active, thermic Typic Endoaqualfs

Typical Pedon

Tichnor silt loam, 0 to 1 percent slopes, frequently flooded, in a milo field in the NW¼NW¼SW¼ sec. 28, T. 5 N., R. 1 W.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; common fine roots; few very fine tubular pores; few fine black concretions; slightly acid; abrupt smooth boundary.
Eg1—6 to 17 inches; gray (10YR 6/1) silt loam; weak fine subangular blocky structure; friable; few fine roots; few fine tubular pores; common fine distinct dark yellowish brown (10YR 4/4) iron accumulations; few fine and medium black concretions; moderately acid; clear wavy boundary.
Eg2—17 to 27 inches; light brownish gray (10YR 6/2) silt loam; weak medium subangular blocky structure; friable; few fine roots; few fine tubular pores; common medium distinct yellowish brown (10YR 5/4) iron accumulations; few fine and medium black concretions; strongly acid; gradual smooth boundary.
Btg1—27 to 42 inches; gray (10YR 5/1) silty clay loam; moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds; few fine tubular pores; common medium distinct yellowish brown (10YR 5/4) iron accumulations; few fine and medium black concretions; very strongly acid; clear wavy boundary.
Btg2—42 to 60 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure; firm; few faint clay films on faces of peds; few fine tubular pores; common medium distinct yellowish brown (10YR 5/6) iron

accumulations; few fine black concretions; very strongly acid; gradual wavy boundary.
BCg—60 to 72 inches; gray (10YR 6/1) silt loam; weak fine subangular blocky structure; friable; few fine tubular pores; common medium distinct yellowish brown (10YR 5/6) iron accumulations; few fine black concretions; very strongly acid.

Range in Characteristics

Solum thickness: 50 to 80 inches or more

Ap horizon:
Color— hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam
Reaction—strongly acid or moderately acid, except in areas which have been limed or affected by irrigation water

Eg horizon:
Color—hue of 10YR, value of 5 to 7, and chroma of 1 or 2
Redoximorphic concentrations and depletions—shades of brown and gray
Texture—silt loam or silt
Reaction—very strongly acid to moderately acid

Btg horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2
Texture—silt loam or silty clay loam
Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
Reaction—very strongly acid or strongly acid

BCg horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2
Texture—silt loam or silty clay loam
Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
Reaction—very strongly acid or strongly acid

Tipp Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Slow
Parent material: Silty and clayey alluvium
Landform position: Flood plains
Commonly associated soils: Kobel, Taylorbay, and Yancopin
Slope range: 0 to 3 percent
Taxonomic class: Fine, mixed, active, thermic Cumulic Hapludolls

Typical Pedon

Tipp silty clay loam, 0 to 3 percent slopes, rarely flooded, in an idle field in the NE¼NW¼SE¼ sec. 18, T. 9 N., R. 3 W.

Ap1—0 to 5 inches; dark brown (10YR 3/3) silty clay loam; moderate medium subangular blocky structure; firm; common fine and medium roots; common fine and medium pores; slightly acid; clear smooth boundary.
Ap2—5 to 10 inches; very dark grayish brown (10YR 3/2) silty clay loam; moderate medium and coarse subangular blocky structure; firm; common fine and medium roots; common fine and medium pores; few charcoal fragments; neutral; clear smooth boundary.
Bw1—10 to 21 inches; very dark grayish brown (10YR 3/2) silty clay; strong medium subangular blocky structure; firm; common fine roots; common fine, medium, and coarse pores; few fine faint dark grayish brown (10YR 4/2) iron depletions on faces of some peds; neutral; clear smooth boundary.
Bw2—21 to 34 inches; dark brown (10YR 3/3) silty clay; moderate medium subangular blocky structure; firm; common fine roots; common fine, medium, and coarse pores; common fine and medium distinct dark yellowish brown (10YR 4/4) iron accumulations on faces of some peds; neutral; clear smooth boundary.
Bw3—34 to 47 inches; very dark grayish brown (10YR 3/2) silty clay; moderate fine and medium subangular blocky structure; firm; few fine roots; common fine and medium pores; common medium distinct dark yellowish brown (10YR 4/4) iron accumulations on faces of some peds; few fine round iron-manganese concretions; neutral; clear smooth boundary.
Bw4—47 to 60 inches; grayish brown (10YR 5/2) silty clay; moderate fine and medium subangular blocky structure; firm; few fine roots; common fine pores; common medium distinct dark brown (10YR 4/3) and dark yellowish brown (10YR 4/4) iron accumulations on faces of some peds; few fine round iron-manganese concretions; few medium prominent black (10YR 2/1) manganese accumulations on faces of some peds; slightly acid; gradual smooth boundary.
Bw5—60 to 77 inches; brown (10YR 4/3) silty clay loam; moderate fine and medium subangular blocky structure; firm; common fine pores; many medium and coarse distinct dark yellowish brown (10YR 4/4, 4/6) iron accumulations on faces of some peds; many medium distinct (10YR 5/2) iron

depletions on faces of some peds; few fine round iron-manganese concretions; few medium prominent black (10YR 2/1) manganese accumulations on faces of some peds; slightly acid.

Range in Characteristics

Solum thickness: 50 to 70 inches or more

Ap horizon:
- Color—hue of 10YR or 7.5YR, value of 3, and chroma of 2 or 3
- Texture—silty clay loam
- Reaction—moderately acid to neutral

Bw horizon (upper part):
- Color—hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 2 to 4
- Texture—silty clay loam or silty clay
- Redoximorphic concentrations and depletions—shades of brown
- Reaction—moderately acid to neutral

Bw horizon (lower part):
- Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
- Texture—silty clay loam or silty clay
- Redoximorphic concentrations and depletions—shades of gray or brown
- Reaction—moderately acid to slightly alkaline

C horizon (where present):
- Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
- Texture—loam, silt loam, silty clay loam, or silty clay
- Redoximorphic concentrations and depletions—shades of gray or brown
- Reaction—moderately acid to slightly alkaline

Tuckerman Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderately slow
Parent material: Loamy alluvium
Landform position: Flood plains and low stream terraces
Commonly associated soils: Askew, Bonn, Bulltown, Foley, Grubbs, Lafe, McCrory, Patterson, Teksob, and Wiville
Slope range: 0 to 1 percent
Taxonomic class: Fine-loamy, mixed, active, thermic Typic Endoaqualfs

Typical Pedon

Tuckerman loam, 0 to 1 percent slopes, frequently flooded, in a cultivated field in the NW¼SW¼SW¼ sec. 11, T. 8 N., R. 1 W.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) loam; moderate fine and medium granular structure; friable; many fine roots; common fine pores; few fine distinct brownish yellow (10YR 6/8) iron accumulations lining old root channels (oxidized rhizospheres); few fine round hard iron-manganese concretions; moderately acid; abrupt smooth boundary.

Eg1—7 to 12 inches; light brownish gray (10YR 6/2) fine sandy loam; weak coarse subangular blocky structure; friable; common fine roots; few fine and very fine pores; common medium distinct dark yellowish brown (10YR 4/4) and common fine distinct brownish yellow (10YR 6/8) iron accumulations throughout; few fine round iron-manganese concretions; common medium prominent black (10YR 2/1) manganese accumulations on faces of some peds; moderately acid; gradual smooth boundary.

Eg2—12 to 18 inches; light brownish gray (10YR 6/2) and light gray (10YR 7/2) loam; weak coarse subangular blocky structure; friable; common fine roots; common fine pores; common medium distinct dark yellowish brown (10YR 4/4) and common fine distinct brownish yellow (10YR 6/8) iron accumulations throughout; few fine round iron-manganese concretions; few medium prominent black (10YR 2/1) manganese accumulations on faces of some peds; moderately acid; gradual smooth boundary.

Btg1—18 to 25 inches; light brownish gray (10YR 6/2) loam; weak medium and coarse subangular blocky structure; firm; few fine roots; common fine and medium pores; few faint clay films on faces of peds and lining pores; few light gray (10YR 7/1) clay depletions on faces of some peds; common medium distinct dark yellowish brown (10YR 4/4, 4/6) and common fine distinct brownish yellow (10YR 6/8) iron accumulations throughout; few medium and coarse round iron-manganese concretions and few medium soft black nodules; very strongly acid; gradual smooth boundary.

Btg2—25 to 36 inches; grayish brown (2.5Y 6/2) clay loam; moderate coarse subangular blocky structure; firm; few fine roots; few fine pores; common distinct clay films on faces of peds and lining pores; common medium distinct dark yellowish brown (10YR 4/4, 4/6) iron accumulations throughout; few fine prominent black (10YR 2/1) manganese accumulations, mainly along old root channels; few fine round iron-manganese concretions and few medium soft

black nodules; very strongly acid; clear smooth boundary.

Btg3—36 to 48 inches; light brownish gray (2.5Y 6/2) loam; moderate medium and coarse subangular blocky structure; firm; few fine roots; common fine pores; common distinct clay films on faces of peds and lining pores; common medium distinct dark yellowish brown (10YR 4/6) and strong brown (7.5YR 4/6) iron accumulations throughout; few fine and medium round iron-manganese concretions and few fine soft black nodules; many medium prominent black (10YR 2/1) manganese accumulations on faces of most peds; strongly acid; clear wavy boundary.

BCg—48 to 57 inches; grayish brown (10YR 5/2) fine sandy loam; weak coarse subangular blocky structure; friable; few fine roots; few fine pores; common medium distinct yellowish brown (10YR 5/6) and few fine distinct strong brown (7.5YR 5/6) iron accumulations throughout; few fine and medium iron-manganese concretions and few soft nodules; common medium prominent black (10YR 2/1) manganese accumulations on faces of some peds; moderately acid; clear smooth boundary.

Cg1—57 to 68 inches; grayish brown (10YR 5/2) loamy fine sand; structureless, massive; friable; common dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4) loamy fine sand bedding planes 1/8 to 1/4 inch thick; slightly acid; abrupt smooth boundary.

Cg2—68 to 77 inches; grayish brown (2.5Y 5/2) loam; structureless, massive; friable; few medium distinct dark yellowish brown (10YR 4/4) iron accumulations throughout; two almost continuous, hard calcium carbonate layers about 1/4 inch thick; slightly alkaline; abrupt smooth boundary.

Cg3—77 to 86 inches; dark yellowish brown (10YR 4/4) sand; structureless, single grained; very friable; common grayish brown (10YR 5/2) and pale brown (10YR 6/3) loamy sand bedding planes 1/8 to 1/4 inch thick; common dark yellowish brown (10YR 4/6) soft iron nodules in bedding planes; moderately alkaline.

Range in Characteristics

Solum thickness: 40 to 60 inches or more

Ap horizon:
- Color—hue of 10YR, value of 3 to 5, and chroma of 2 to 4
- Texture—loam or an overwash phase of silty clay loam
- Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
- Reaction—very strongly acid to moderately acid

Eg horizon:
- Color—hue of 10YR, value of 5 to 7, and chroma of 1 or 2
- Texture—fine sandy loam or loam
- Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
- Reaction—very strongly acid to moderately acid

BA or BE horizon (where present):
- Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2
- Texture—loam or fine sandy loam
- Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
- Reaction—very strongly acid to moderately acid

Btg horizon:
- Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2
- Texture—loam, sandy clay loam, or clay loam
- Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
- Reaction—very strongly acid to moderately acid

BCg horizon:
- Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2
- Texture—fine sandy loam, sandy loam, or loam
- Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
- Reaction—very strongly acid to moderately acid

Cg horizon:
- Color—hue of 10YR, value of 4 to 7, and chroma of 1 to 4
- Texture—loam, fine sandy loam, sandy loam, loamy fine sand, loamy sand, or sand
- Redoximorphic concentrations and depletions—shades of brown, yellow, and gray
- Reaction—strongly acid to moderately alkaline

Wiville Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Eolian deposits
Landform position : Sand dunes on terraces
Commonly associated soils: Bulltown, Patterson, and Tuckerman
Slope range: 0 to 8 percent
Taxonomic class: Fine-Loamy, siliceous, active, thermic Ultic Hapludalfs

Typical Pedon

Wiville fine sandy loam, 0 to 1 percent slopes, in an idle field in the SW¼NW¼NE¼ sec. 3, T. 6 N., R. 3 W.

Ap1—0 to 5 inches; dark yellowish brown (10YR 3/4) fine sandy loam; moderate medium granular structure; very friable; many fine and very fine roots; common fine and very fine pores; few fine round iron-manganese concretions; moderately acid; abrupt smooth boundary.

Ap2—5 to 11 inches; dark yellowish brown (10YR 3/4) fine sandy loam; weak coarse subangular blocky structure; firm; few pockets of brown (10YR 5/3) fine sandy loam; few fine and very fine roots; common fine and very fine pores; few fine round iron-manganese concretions; moderately acid; abrupt smooth boundary.

BA—11 to 18 inches; brown (7.5YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; few fine and very fine roots; many fine and medium pores; few fine round iron-manganese concretions; slightly acid; clear smooth boundary.

Bt1—18 to 27 inches; brown (7.5YR 4/4) fine sandy loam; moderate medium subangular blocky structure; friable; few fine and very fine roots; many fine and medium pores; few faint clay films on faces of peds and lining pores; pocket of pale brown (10YR 6/3) fine sandy loam following an old root channel; few fine round iron-manganese concretions; moderately acid; clear smooth boundary.

Bt2—27 to 56 inches; brown (7.5YR 4/4) sandy clay loam; moderate medium subangular blocky structure; friable; few fine and very fine roots; common fine and very fine pores; common faint clay films on faces of peds and lining pores; pocket of pale brown (10YR 6/3) fine sandy loam following an old root channel; few fine round iron-manganese concretions; few fine distinct manganese accumulations on faces of peds; moderately acid; clear smooth boundary.

BC—56 to 64 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak coarse subangular blocky structure; friable; pockets of clean pale brown (10YR 6/3) sand making up less than 10 percent of the total volume; few fine and medium pores; few fine round iron-manganese concretions; few medium distinct manganese accumulations on faces of peds; strongly acid; clear smooth boundary.

C—64 to 80 inches; yellowish brown (10YR 5/4) fine sand; structureless, single grained; very friable; strongly acid.

Range in Characteristics

Solum thickness: 60 to 80 inches or more

Ap horizon:
- Color—hue of 10YR, value of 3, and chroma of 4 or value of 4 and chroma of 3 or 4; or hue of 7.5YR, value of 4, and chroma of 4
- Texture—fine sandy loam
- Reaction—strongly acid to neutral

BA horizon:
- Color—hue of 10YR or 7.5YR, value of 4, and chroma of 4
- Texture—fine sandy loam, sandy loam, or loam
- Reaction—strongly acid to neutral

Bt horizon:
- Color—hue of 10YR or 7.5YR, value of 4, and chroma of 4 or 6 or value of 5 and chroma of 4, 6, or 8
- Texture—loam, fine sandy loam, sandy clay loam, or clay loam
- Redoximorphic concentrations and depletions—shades of brown
- Reaction—strongly acid to slightly acid

BC horizon:
- Color—hue of 10YR or 7.5YR, value of 4, and chroma of 4 or 6 or value of 5 and chroma of 4, 6, or 8
- Texture—fine sandy loam, sandy loam, loamy fine sand, or loamy sand
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—strongly acid to slightly acid

C horizon:
- Color—hue of 10YR, value of 4, and chroma of 4 or 6 or value of 5 and chroma of 4, 6, or 8
- Texture—loamy sand, loamy fine sand, fine sand, or sand
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—strongly acid to neutral

Yancopin Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Parent material: Silty alluvium
Landform position: Flood plains
Commonly associated soils: Kobel, Taylorbay, and Tipp
Slope range: 0 to 3 percent
Taxonomic class: Fine-silty, mixed, superactive, nonacid, thermic Typic Endoaquepts

Typical Pedon

Yancopin silty clay loam, 0 to 3 percent slopes, frequently flooded, in an idle field in the NW¼SW¼NW¼ sec. 36, T. 8 N., R. 4 W.

Ap—0 to 4 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate medium granular structure grading to weak fine subangular blocky structure in the lower part; firm; many fine and medium roots; many medium and coarse pores; few fine and medium round brown-black iron-manganese concretions; slightly acid; clear smooth boundary.

Bg1—4 to 40 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common medium and coarse pores; common worm holes; few charcoal fragments; common coarse faint brown (10YR 4/3) and dark yellowish brown (10YR 4/4) and few medium distinct yellowish brown (10YR 5/4) iron accumulations throughout matrix; common medium and coarse round brown-black iron-manganese concretions; few medium distinct black (10YR 2/1) manganese accumulations on faces of some peds; slightly acid; gradual wavy boundary.

Bg2—40 to 56 inches; dark grayish brown (10YR 4/2) silty clay loam; weak medium subangular blocky structure; firm; few fine roots; common fine medium and coarse pores; many medium faint dark yellowish brown (10YR 4/4) and brown (10YR 4/3) and common medium distinct yellowish brown (10YR 5/4) iron accumulations throughout matrix; common medium and coarse round brown-black iron-manganese concretions; few medium distinct black (10YR 2/1) manganese accumulations on faces of some peds; neutral; gradual smooth boundary.

BC—56 to 76 inches; light brownish gray (10YR 6/2) silty clay loam; weak medium subangular blocky structure; firm; common fine, medium, and coarse pores; many medium distinct brown (10YR 4/3) and dark yellowish brown (10YR 4/4) and common medium distinct yellowish brown (10YR 5/4) iron accumulations throughout matrix; common medium and coarse round brown-black iron-manganese concretions; few medium black manganese accumulations on faces of some peds; neutral.

Range in Characteristics

Solum thickness: 45 to 60 inches or more

Ap horizon:
- Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
- Texture—silty clay loam
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—moderately acid to neutral

Bg horizon:
- Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2
- Texture—silt loam or silty clay loam
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—moderately acid to neutral

BC horizon:
- Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 or 3
- Texture—silt loam, silty clay loam, or loam
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—moderately acid to neutral

C horizon (where present):
- Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 to 4
- Texture—silt loam, silty clay loam, loam, fine sandy loam, loam, or loamy fine sand
- Redoximorphic concentrations and depletions—shades of brown and gray
- Reaction—moderately acid to slightly alkaline

Formation of the Soils

In this section, the factors of soil formation are discussed and related to the soils in the survey area. In addition, the processes of soil formation are described.

Factors of Soil Formation

Soil is formed by weathering and other processes that act upon the parent material. The characteristics of the soil at any given point depend upon climate, living organisms, parent material, relief, and time. Each factor acts on the soil and modifies the effect of the other four. When climate, living organisms, or any of the other five factors is varied to a significant extent, a different soil may be formed.

Climate and living organisms are the active forces in soil formation. Relief modifies the effects of climate and living organisms, mainly by its influence on temperature and runoff. Because climate, vegetation, parent material, and relief interact over a period of time, the effect of time is also reflected in the soil characteristics. The interaction of the five factors of soil formation is more complex for some soils than for others.

Climate

The climate of Woodruff County is characterized by mild winters, warm or hot summers, and general abundant rainfall. The general warm temperatures and high precipitation probably are similar to the climate under which the soils in the county formed. The average temperature in July is about 81 degrees F and about 39 degrees F in January. The total annual rainfall is about 50 inches and is well distributed throughout the year. For additional information about climate, refer to the section "General Nature of the County."

The warm, moist climate promotes rapid soil formation and encourages rapid chemical reactions. The large amount of water that moves through the soil is instrumental in moving dissolved or suspended material downward in the soil profile. Plant remains decompose rapidly, and the organic acid that forms hastens the removal of carbonates and the formation of clay minerals.

Because the soil is frozen only to a shallow depth and for a relatively short period, soil formation continues almost year round. The climate throughout the county is relatively uniform, but its effect is modified locally by elevation, slope steepness, and slope aspect. Climate alone does not account for differences in the soils of the county.

Living Organisms

Plants and animals, including insects, bacteria, and fungi, are important in the formation of soils. Among the changes they cause are additions of organic matter and nitrogen in the soil, additions or losses in plant nutrients, and changes in soil structure and porosity.

Before Woodruff County was settled, the native vegetation had more influence on soil formation than did animal activity.

Hardwood forests covered most of the bottomland of the county. On the flood plain and natural levees, the trees were mainly oaks, sweetgum, ash, sycamore, hackberry, pecan, and hickory. Amagon, Askew, Dubbs, Dundee, Teksob, and Tuckerman soils formed in these areas. In slackwater areas or swamps, the main trees were baldcypress and water tupelo. Kobel and Yancopin soils formed in these areas. On the loess upland, the forests were mainly mixed stands of hardwoods. Calhoun, Calloway, and Grenada soils formed in these areas.

In the southeast corner of Woodruff County, around Hunter, the native vegetation is believed to have been of a prairie or savannah type. The Hillemann soils formed in this area. These soils, however, do not have the thick, dark colored surface layer commonly associated with soils formed under this type of vegetation.

In most cases, the soil characteristics were influenced more by parent material, climate, and relief than by vegetation.

People are important to the future rate and direction of soil formation. They clear the forests, cultivate the soils, and introduce new kinds of plants. Fertilizers, lime, and chemicals for insect, disease, and weed control are added to the soil. Constructing levees and dams for flood control, improving drainage, and grading

the soil surface also effect the development of soils. Some results of these changes will not be evident for many centuries; nevertheless, the effects of living organisms on soil formation in Woodruff County has been drastically changed by these activities. Thus, man has become the most important organism affecting soil formation.

Parent Material and Geology

The soils of Woodruff County formed in water deposited alluvium and eolian soil material consisting of silty loess and sandy dunes. The alluvium was deposited by the Mississippi River when it flowed in the channels now occupied by the Bayou Deview, Cache, and White Rivers. The alluvium consists of a mixture of minerals washed from many kinds of soils, rocks, and unconsolidated sediments derived from the Mississippi River basins, which extends from Montana to Pennsylvania.

The wide range in texture of alluvium in the county results from differences in the site of deposition. When a river overflows and spreads over its flood plain, the coarse sediments are deposited in bands roughly parallel to the channel. Thus, low ridges known as natural levees are formed. On these ridges, Askew, Dubbs, and Teksob soils formed. Finer sediments, high in silt content, are deposited as the floodwaters spread and lose velocity. These sediments contain some sand and clay. Dundee and Amagon soils formed in these sediments of intermediate texture. When the flood recedes and water is left standing as shallow lakes or swamps, the clay and finer silt settle. In these sediments, Jackport and Kobel soils formed.

During much of the Pleistocene Epoch, the Mississippi River flood plain was west of Crowley's Ridge, and the Ohio River flowed on the east side of the ridge. Thousands of years ago, the wide trough carved west of Crowley's Ridge was partially refilled with sediments by the Mississippi River. Finally, the vast complex of alluvial terraces west of Crowley's Ridge was abandoned by the Mississippi River in favor of the Ohio River channel on the east side of the ridge. The broad, abandoned flood plain was subsequently drained by smaller streams that occupied former braided channels of the Mississippi River. The smaller streams were inadequate to maintain the entire area as an active flood plain. Those parts of the plain above overflow were progressively mantled with loess.

The soils on the east side of Woodruff County formed in loess deposits during the Pleistocene Epoch. This mantle of wind-transported material was deposited over older alluvium. The loess mantle is thick enough that the solum of most soils formed entirely in this material. Generally, the loess is about 2 to 12 feet thick. On the level parts of the plain, Calhoun and Henry soils formed. In the nearly level to gently sloping areas, Calloway and Grenada soils formed. Areas where the loess is thin, the Hillemann soils formed.

Adjacent to the White River bottomland in the north and central part of Woodruff County occurs sandy eolian dune deposits. These deposits were formed during periods of low river flow when exposed channels and sand bars provided the source material needed to form dunes. The sand size material was blown out of the streambed and deposited at higher elevations over old alluvium. The Bulltown, Patterson, and Wiville soils formed in this material.

Relief

Relief is the inequalities in elevation of a land surface. The other soil-forming factors are affected by relief through its effect on drainage, runoff, erosion, and percolation of water through the soil. Some of the greatest differences among the soils are due mainly to differences in relief.

In Woodruff County, the alluvial terraces above the flood plains of streams have relief ranging from broad flats and depressions to areas of alternating swales and low ridges. Local differences in elevation range to as much as 20 feet on a few steep escarpments, but are generally 5 to 10 feet in most areas. The slope is generally less than 3 percent. On the broad flats and in depressions on flats and between low ridges, differences in local elevation is small. Surface drainage is slow or very slow. Soils in these areas are poorly drained or somewhat poorly drained and have a seasonal perched water table. Amagon, Dundee, Jackport, and Overcup soils formed in these areas. The well drained Dubbs and Teksob soils are on low ridges at slightly higher elevations.

The loess uplands east of Bayou Deview in Woodruff County has relief ranging from broad flats to gently sloping ridges. Local differences in relief are usually less than 1 foot on flats and range up to 3 to 8 feet on ridges. On the broad flats, surface drainage is slow or very slow. Soils in these areas are poorly drained and have a seasonal high water table. Calhoun and Henry soils formed in these areas. On ridges, the somewhat poorly drained Calloway and the moderately well drained Grenada soils formed.

The flood plain area of Woodruff County consists of the Bayou Deview and Cache and White River bottomland. These areas have relief ranging from broad flats to undulating areas of alternating swales and low ridges. Local differences in relief are usually less than 1 foot on the flats and range up to 3 feet in the areas of

swales and low ridges. On the broad flats, surface drainage is slow or very slow. Soils in these areas are poorly drained and have a seasonal high water table. In the Bayou Deview and Cache River bottomland area, Tuckerman soils formed in these areas; and in the White River bottomland, Kobel soils formed. The somewhat poorly drained Yancopin soils formed in gently undulating areas of the White River bottomland.

The dune areas are in the central and northwest part of Woodruff County, adjacent to the White River bottomland. This area has relief ranging from level to undulating. Local difference in relief are usually less than 3 feet but range up to 8 feet on ridges. On the level to gently sloping areas, the well drained Wiville soils formed. The somewhat excessively drained Bulltown soils formed in undulating areas.

The elevations range from 165 to 195 feet on the flood plains, 195 to 225 feet on alluvial terraces and dune areas, and 200 to 225 feet on Nubbin Ridge and loess uplands.

Time

The time required for soil formation depends largely on other factors of soil formation. Less time generally is required if the climate is warm and humid and the vegetation luxuriant than if climate is cold and vegetation is sparse. If other factors are equal, less time is also required if the parent material is loamy than if it is clayey.

In terms of geological time, most of the soils of Woodruff County are young.

In terms of soil formation, their age varies widely. Older soils usually show a greater contrast between horizons than do younger soils.

All of the soils in Woodruff County have a developed B horizon. Oaklimeter and Yancopin soils have not been in place long enough to form an argillic, or mature B horizon, but have formed a cambic, or less well developed B horizon. The Kobel soils formed in slackwater deposits of clay that shrink and swell. Because of the high clay content and mixing caused by shrinking and swelling, an argillic horizon has not formed. Many soils, such as Bonn, Calhoun, Foley, McCrory, and Tuckerman, have been forming long enough and in stable enough material to have an argillic horizon. Other soils, such as Calloway, Grenada, and Henry, also have a fragipan.

Processes of Soil Formation

The effects of the soil-forming factors are reflected in the soil profile. The soil profile is a succession of layers, or horizons, from the surface to the parent material. These horizons differ in one or more properties, such as color, texture, structure, consistency, porosity, or reaction.

Most soil profiles in this survey area contain 4 to 8 horizons or layers. The master horizons are designated A, E, B, and C. Young soils do not have E and B horizons.

The horizon of maximum accumulation of organic matter is called the A horizon, or the surface layer. An Ap horizon is a plowed surface layer. The horizon of maximum leaching of dissolved or suspended material is called the E horizon, or the subsurface layer.

The B horizon, or subsoil, is below the A or E horizon. It is the horizon of maximum accumulation of suspended material, such as clay and iron. Commonly, the B horizon has blocky structure and is firmer than the horizons immediately above or below it.

The C horizon is below the B horizon. It is affected little by the soil-forming processes, but it can be materially modified by weathering. In some young soils, the C horizon immediately underlies the A horizon and has been slightly modified by living organisms as well as weathering.

In this survey area, several processes have been active in the formation of soil horizons. These processes are the accumulation of organic matter, the leaching of carbonates and bases, the oxidation or reduction and transfer of iron, and the formation and translocation of silicate clay minerals. In most of the soils, more than one of these processes has been active in soil formation.

The accumulation of organic matter in the upper part of the profile (A horizon) has been an important process of soil formation. The soils in Woodruff County range from high to low in organic matter content.

Leaching of carbonates and bases has occurred to some degree in nearly all of the soils in the survey area. Generally, bases are leached downward in soils before silicate clay minerals begin to move. Most of the soils on the uplands in the survey area have been strongly leached. Some soils, such as Kobel and Yancopin, are only slightly leached.

Oxidation of iron is evident in the moderately well drained and well drained soils in the county. Oxidation of iron is indicated by the yellowish brown, brown, and strong brown colors in the B horizon of Bulltown, Dubbs, Grenada, Teksob, and Wiville soils.

The reduction and transfer if iron has occurred to a significant degree in the poorly drained and somewhat poorly drained soils in the lowlands. In the naturally wet soils, this process is called gleying. The gray colors in the horizon below the surface layer indicate the reduction and loss of iron. Some horizons contain

reddish or yellowish accumulations and concretions derived from segregated iron.

Gleying is very pronounced in the Calhoun, Henry, and Tichnor soils.

The translocation of silicate clay minerals has contributed to horizon development in most of the soils in the county. Where the E horizon occurs, it generally has weak subangular blocky structure, has less clay than the lower horizons, and is lighter in color than the rest of the soil. Clay films generally have accumulated in pores and on the surface of peds in the B horizon. The soils were probably leached of carbonates and soluble salts to a great extent before translocation of silicate clay occurred.

Leaching of bases and translocation of silicate clay are among the most important processes in horizon differentiation in the soils of Woodruff County.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bottom land. The normal flood plain of a stream, subject to flooding.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping.

The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and

resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Excess sodium (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fast intake (in tables). The rapid movement of water into the soil.

Fine textured soil. Sandy clay, silty clay, or clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is

known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making

up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after

exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Level	0 to 1 percent
Nearly level	1 to 3 percent
Gently sloping	3 to 8 percent

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10

Very fine sand ..... 0.10 to 0.05
Silt ..... 0.05 to 0.002
Clay ..... less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1951-90 at Brinkley, Arkansas)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	o F	o F	o F	o F	o F	Units	In	In	In		In
January	49.0	29.0	39.0	74	6	33	3.82	1.88	5.49	6	2.3
February	53.3	32.8	43.1	77	10	60	4.50	2.52	6.25	7	1.5
March	62.2	40.2	51.2	83	22	149	4.77	2.57	6.69	8	.4
April	72.8	49.9	61.4	88	31	346	5.32	2.72	7.57	7	0.0
May	61.1	58.7	69.9	94	42	617	5.62	2.80	8.07	7	0.0
June	89.1	66.4	77.8	100	51	834	3.74	1.37	5.70	6	0.0
July	92.4	69.9	81.2	102	57	967	3.54	1.50	5.27	5	0.0
August	91.3	67.9	79.6	102	56	918	3.03	1.14	4.60	5	0.0
September	85.1	60.6	72.9	98	41	687	3.56	1.57	5.25	5	0.0
October	75.4	48.0	61.7	91	30	370	3.01	1.25	4.52	5	0.0
November	62.6	39.1	50.9	83	20	91	4.32	2.40	6.01	6	0.1
December	51.8	31.8	41.8	75	10	50	4.73	2.32	8.81	6	.8
Yearly:											
Average	72.2	49.5	60.9	---	---	---	---	---	---	---	---
Extreme	---	---	---	104	2	---	---	---	---	---	---
Total	---	---	---	---	---	5,122	49.96	42.73	56.10	73	5.1

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1951-90 at Brinkley, Arkansas)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Mar. 26	Apr. 2	Apr. 14
2 years in 10 later than--	Mar. 14	Mar. 26	Apr. 8
5 years in 10 later than--	Feb. 21	Mar. 14	Mar. 29
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 29	Oct. 26	Oct. 19
2 years in 10 earlier than--	Nov. 7	Nov. 1	Oct. 24
5 years in 10 earlier than--	Nov. 25	Nov. 12	Nov. 2

Table 3.--Growing Season

(Recorded in the period 1951-90 at Brinkley, Arkansas)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	239	214	194
8 years in 10	249	224	202
5 years in 10	270	243	217
2 years in 10	292	261	233
1 year in 10	306	271	241

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
AmA	Amagon silt loam, 0 to 1 percent slopes	6,611	1.7
AsB	Askew fine sandy loam, 1 to 3 percent slopes	11,138	2.9
BsA	Teksob loam, 0 to 1 percent slopes	9,953	2.6
BsB	Teksob loam, 1 to 3 percent slopes	10,952	2.9
BsC	Teksob loam, 3 to 8 percent slopes	3,367	0.9
BuC	Bulltown loamy fine sand, 1 to 8 percent slopes	11,123	2.9
CaA	Calhoun silt loam, 0 to 1 percent slopes	11,527	3.0
ClA	Calloway silt loam, 0 to 1 percent slopes	5,896	1.6
ClB	Calloway silt loam, 1 to 3 percent slopes	3,016	0.8
DbA	Dubbs silt loam, 0 to 1 percent slopes	6,030	1.7
DbB	Dubbs silt loam, 1 to 3 percent slopes	4,731	1.2
DbC	Dubbs silt loam, 3 to 8 percent slopes	851	0.2
DuA	Dundee silt loam, 0 to 1 percent slopes	7,419	2.0
FbA	Foley-Bonn complex, 0 to 1 percent slopes	21,210	5.6
FdA	Forestdale silty clay loam, 0 to 1 percent slopes, frequently flooded	6,883	1.8
GrB	Grenada silt loam, 1 to 3 percent slopes	4,338	1.2
GrC	Grenada silt loam, 3 to 8 percent slopes, eroded	4,310	1.2
GuB	Grubbs silt loam, 1 to 3 percent slopes	10,439	2.8
GuC	Grubbs silt loam, 3 to 8 percent slopes, eroded	4,238	1.2
HeA	Henry silt loam, 0 to 1 percent slopes	15,800	4.2
HmA	Hillemann silt loam, 0 to 1 percent slopes	8,098	2.1
HmB	Hillemann silt loam, 1 to 3 percent slopes	492	0.1
JpA	Jackport silty clay loam, 0 to 1 percent slopes	12,436	3.3
KbA	Kobel silty clay loam, 0 to 1 percent slopes, rarely flooded	13,051	3.5
KlA	Kobel silty clay loam, 0 to 1 percent slopes, frequently flooded	27,485	7.2
KoA	Kobel silty clay loam, 0 to 1 percent slopes, ponded	9,608	2.5
LfA	Lafe silt loam, 0 to 1 percent slopes	3,460	0.9
Lv	Levee	479	0.1
McA	McCrory fine sandy loam, 0 to 1 percent slopes	16,524	4.3
OaB	Oaklimeter silt loam, 0 to 2 percent slopes, occasionally flooded	371	*
OvA	Overcup silt loam, 0 to 1 percent slopes	18,780	4.9
PaB	Patterson fine sandy loam, 0 to 2 percent slopes	3,580	0.9
TaB	Taylorbay silt loam, 0 to 3 percent slopes, rarely flooded	2,112	0.6
TbB	Taylorbay silt loam, 0 to 3 percent slopes, frequently flooded	5,455	1.4
TcA	Tichnor silt loam, 0 to 1 percent slopes, frequently flooded	5,088	1.3
TiB	Tipp silty clay loam, 0 to 3 percent slopes, rarely flooded	1,817	0.5
TpB	Tipp silty clay loam, 0 to 3 percent slopes, frequently flooded	1,008	0.3
TrA	Tuckerman loam, 0 to 1 percent slopes, frequently flooded	12,240	3.2
TuA	Tuckerman silty clay loam, 0 to 1 percent slopes, frequently flooded	19,964	5.2
W	Water	6,530	1.7
WvA	Wiville fine sandy loam, 0 to 1 percent slopes	8,010	2.1
WvB	Wiville fine sandy loam, 1 to 3 percent slopes	8,322	2.2
WvC	Wiville fine sandy loam, 3 to 8 percent slopes	1,178	0.3
YaB	Yancopin silty clay loam, 0 to 3 percent slopes, rarely flooded	8,900	2.3
YpB	Yancopin silty clay loam, 0 to 3 percent slopes, frequently flooded	25,282	6.7
	Total	380,102	100.0

* Less than 0.1 percent.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Soil name and map symbol	Land capability	Corn	Soybeans	Grain sorghum	Rice	Wheat	Common bermudagrass	Tall fescue
		Bu	Bu	Bu	Bu	Bu	AUM*	AUM*
AmA---------- Amagon	IIIw	---	25	75	160	50	7.5	8.5
AsB---------- Askew	IIe	95	25	80	---	55	9.0	9.0
BsA---------- Teksob	I	100	35	90	---	60	10.0	9.0
BsB---------- Teksob	IIe	95	25	85	---	55	10.0	9.0
BsC---------- Teksob	IIIe	85	20	75	---	50	9.0	8.0
BuC---------- Bulltown	IIIs	85	20	70	---	45	5.5	5.0
CaA---------- Calhoun	IIIw	---	30	75	160	50	6.0	6.0
ClA---------- Calloway	IIw	95	30	75	160	55	7.0	8.0
ClB---------- Calloway	IIe	90	25	70	150	50	7.0	8.5
DbA---------- Dubbs	I	100	35	90	---	60	10.0	10.0
DbB---------- Dubbs	IIe	95	25	85	---	55	10.0	10.0
DbC---------- Dubbs	IIIe	85	20	80	---	50	9.0	8.0
DuA---------- Dundee	IIw	90	25	80	160	50	9.0	9.0
FbA**:								
Foley----------	IIIw	---	25	70	150	40	6.0	7.0
Bonn----------	IVs	---	15	---	120	---	4.0	4.0
FdA---------- Forestdale	IVw	---	25	70	140	---	5.0	4.0
GrB---------- Grenada	IIe	90	30	80	150	55	8.5	8.0
GrC---------- Grenada	IIIe	80	20	75	---	50	8.0	7.0
GuB---------- Grubbs	IIIe	85	25	75	130	50	7.0	8.0

See footnotes at end of table.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Soil name and map symbol	Land capability	Corn	Soybeans	Grain sorghum	Rice	Wheat	Common bermudagrass	Tall fescue
		Bu	Bu	Bu	Bu	Bu	AUM*	AUM*
GuC---------- Grubbs	IVe	75	20	70	---	45	6.0	7.0
HeA---------- Henry	IIIw	---	30	80	160	50	6.0	6.0
HmA---------- Hillemann	IIw	90	30	80	160	55	7.0	8.0
HmB---------- Hillemann	IIe	85	25	75	150	50	7.0	8.0
JpA---------- Jackport	IIIw	---	30	75	160	45	7.0	8.0
KbA---------- Kobel	IIIw	---	30	75	160	45	7.0	8.0
KlA---------- Kobel	IVw	---	25	70	140	---	6.0	6.0
KoA---------- Kobel	VIw	---	---	---	---	---	---	---
LfA---------- Lafe	VIs	---	15	---	120	---	3.5	5.5
Lv. Levee								
McA---------- McCrory	IIIw	---	25	75	140	45	7.0	8.0
OaB---------- Oaklimeter	IIw	95	30	80	140	50	9.0	10.0
OvA---------- Overcup	IIIw	---	30	80	160	50	7.5	8.5
PaB---------- Patterson	IIw	90	20	75	---	50	7.5	7.0
TaB---------- Taylorbay	I	100	35	90	150	60	10.0	9.0
TbB---------- Taylorbay	IVw	---	30	80	130	--	8.0	7.0
TcA---------- Tichnor	IVw	---	30	70	140	---	6.0	6.0
TiB---------- Tipp	IIw	100	35	85	160	50	9.0	9.0
TpB---------- Tipp	IVw	---	30	80	140	---	8.0	7.0
TrA---------- Tuckerman	IVw	---	25	70	---	---	6.5	6.5

See footnotes at end of table.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Soil name and map symbol	Land capability	Corn	Soybeans	Grain sorghum	Rice	Wheat	Common bermudagrass	Tall fescue
		Bu	Bu	Bu	Bu	Bu	AUM*	AUM*
TuA--Tuckerman	IVw	---	25	70	120	---	6.0	6.0
W. Water								
WvA--Wiville	I	100	35	90	---	60	10.0	9.0
WvB--Wiville	IIe	95	30	80	---	55	10.0	9.0
WvC--Wiville	IIIe	85	25	70	---	50	9.0	8.0
YaB--Yancopin	IIw	95	30	80	160	50	9.0	9.5
YpB--Yancopin	IVw	---	25	75	140	---	7.0	8.0

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

Table 6.--Woodland Management and Productivity

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available)

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	Productivity class*	
AmA Amagon	8W	Slight	Moderate	Moderate	Severe	Cherrybark oak Eastern cottonwood Water oak Willow oak Nuttall oak Green ash	90 100 100 100 100 80	8 --- --- --- --- ---	Cherrybark oak, eastern cottonwood, water oak, willow oak, Nuttall oak, Shumard oak.
AsB Askew	8W	Slight	Slight	Slight	Moderate	Cherrybark oak Eastern cottonwood Water oak Willow oak Nuttall oak Sweetgum	90 100 90 90 90 90	8 --- --- --- --- ---	Cherrybark oak, water oak, Nuttall oak.
BsA, BsB, BsC Teksob	9A	Slight	Slight	Slight	Slight	Cherrybark oak Eastern cottonwood Green ash Sweetgum Water oak Willow oak	95 100 80 90 90 90	9 --- --- --- --- ---	Cherrybark oak, eastern cottonwood, sweetgum, shortleaf pine.
BuC Bulltown	9S	Slight	Moderate	Moderate	Slight	Eastern cottonwood Cherrybark oak Nuttall oak	100 90 90	9 --- ---	Eastern cottonwood, cherrybark oak, shortleaf pine.
CaA Calhoun	8W	Slight	Moderate	Moderate	Severe	Cherrybark oak Loblolly pine Shortleaf pine Sweetgum Willow oak Water oak	90 85 84 --- 80 80	8 8 --- --- --- ---	Loblolly pine, water oak, green ash.
ClA, ClB Calloway	8W	Slight	Moderate	Slight	Moderate	Cherrybark oak Shortleaf pine Sweetgum Water oak	90 70 80 80	8 --- --- ---	Sweetgum, loblolly pine.
DbA, DbB, DbC Dubbs	10A	Slight	Slight	Slight	Slight	Cherrybark oak Eastern cottonwood Green ash Nuttall oak Shumard oak Sweetgum Water oak Willow oak	100 100 80 95 100 95 90 95	10 --- --- --- --- --- --- ---	Eastern cottonwood, green ash, Nuttall oak, sweetgum, American sycamore.
DuA Dundee	8W	Slight	Moderate	Slight	Moderate	Cherrybark oak Eastern cottonwood Sweetgum Water oak	90 100 100 95	8 --- --- ---	Cherrybark oak, eastern cottonwood, sweetgum, water oak.

See footnotes at end of table.

Table 6.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	Productivity class*	
FbA**:									
Foley	6W	Slight	Moderate	Severe	Severe	Cherrybark oak	80	6	Sweetgum, water oak, cherrybark oak.
						Water oak	80	---	
						Sweetgum	80	---	
Bonn	3T	Slight	Moderate	Severe	Severe	Eastern redcedar	40	3	Sweetgum, water oak, eastern redcedar.
						Sweetgum	97	---	
						Water oak	95	---	
						Post oak	55	---	
FdA	8W	Slight	Moderate	Severe	Severe	Cherrybark oak	90	8	Eastern cottonwood, green ash, Nuttall oak, sweetgum, American sycamore.
Forestdale						Eastern cottonwood	100	---	
						Green ash	78	---	
						Nuttall oak	99	---	
						Water oak	90	---	
						Willow oak	94	---	
						Sweetgum	100	---	
GrB, GrC	8W	Slight	Slight	Slight	Moderate	Cherrybark oak	90	8	Water oak, Shumard oak, cherrybark oak, loblolly pine, white oak, shortleaf pine, sweetgum.
Grenada						Loblolly pine	85	8	
						Southern red oak	80	---	
						Shortleaf pine	75	---	
						Sweetgum	80	---	
GuB, GuC	8W	Slight	Slight	Slight	Severe	Cherrybark oak	90	8	Nuttall oak, cherrybark oak, water oak, willow oak.
Grubbs						Willow oak	80	---	
						Sweetgum	80	---	
HeA	8W	Slight	Moderate	Severe	Severe	Cherrybark oak	90	8	Shumard oak, water oak, loblolly pine, sweetgum.
Henry						Sweetgum	80	---	
						Willow oak	80	---	
						Water oak	80	---	
HmA, HmB	8W	Slight	Moderate	Moderate	Moderate	Cherrybark oak	90	8	Sweetgum, loblolly pine, water oak, willow oak.
Hillemann						Sweetgum	85	6	
						Water oak	80	---	
JpA	8W	Slight	Moderate	Severe	Severe	Cherrybark oak	90	8	Cherrybark oak, willow oak, eastern cottonwood, Nuttall oak.
Jackport						Green ash	80	---	
						Water oak	90	---	
						Willow oak	90	---	
						Sweetgum	90	---	
KbA	7W	Slight	Moderate	Moderate	Severe	Cherrybark oak	85	7	Eastern cottonwood, American sycamore, cherrybark oak, water oak.
Kobel						Green ash	100	---	
						Eastern cottonwood	90	---	
						Sweetgum	90	---	
						Water oak	90	---	
						Pecan	---	---	
						American sycamore	---	---	

See footnotes at end of table.

Table 6.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	Productivity class*	
KlA Kobel	6W	Slight	Moderate	Severe	Severe	Cherrybark oak Green ash Eastern cottonwood Water oak Water hickory	80 75 90 80 ---	6 --- --- --- ---	Eastern cottonwood, cherrybark oak, green ash, water oak.
KoA Kobel	3W	Slight	Severe	Severe	Severe	Baldcypress Water tupelo Water hickory Green ash	70 --- --- ---	3 --- --- ---	Baldcypress, green ash, water tupelo.
LfA Lafe	2T	Slight	Moderate	Severe	Severe	Post oak Water oak	45 45	2 ---	Post oak, water oak, eastern redcedar.
McA McCrory	6W	Slight	Moderate	Severe	Severe	Water oak Sweetgum Willow oak	85 85 75	6 --- ---	Sweetgum, water oak, willow oak.
OaB Oaklimeter	10W	Slight	Slight	Moderate	Moderate	Cherrybark oak Eastern cottonwood Green ash Loblolly pine Nuttall oak Willow oak Sweetgum	100 100 90 90 100 100 100	10 --- --- --- --- --- ---	Cherrybark oak, eastern cottonwood, loblolly pine, Nuttall oak, sweetgum, water oak, yellow-poplar.
OvA Overcup	8W	Slight	Moderate	Severe	Severe	Cherrybark oak Green ash Water oak Willow oak Sweetgum	90 80 90 90 90	8 --- --- --- ---	Cherrybark oak, Nuttall oak, willow oak.
PaB Patterson	9W	Slight	Moderate	Moderate	Moderate	Cherrybark oak Green ash Nuttall oak Water oak Willow oak Sweetgum	95 70 85 85 90 90	9 --- --- --- --- ---	Cherrybark oak, Nuttall oak, water oak, willow oak, sweetgum.
TaB Taylorbay	10A	Slight	Slight	Slight	Slight	Cherrybark oak White oak Southern red oak Loblolly pine Black walnut	100 80 80 90 ---	10 --- --- --- ---	Cherrybark oak, black walnut, loblolly pine.
TbB Taylorbay	10W	Slight	Slight	Severe	Slight	Cherrybark oak White oak Southern red oak Loblolly pine Black walnut	100 80 80 90 ---	10 --- --- --- ---	Cherrybark oak, black walnut, loblolly pine.

See footnotes at end of table.

Table 6.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	Productivity class*	
TcA---------- Tichnor	10W	Slight	Moderate	Severe	Severe	Cherrybark oak------	96	10	Cherrybark oak,
						Nuttall oak---------	100	---	Nuttall oak,
						Sweetgum----------	100	---	eastern
						Eastern cottonwood--	106	---	cottonwood,
									water oak.
TiB---------- Tipp	9W	Slight	Slight	Slight	Moderate	Cherrybark oak------	95	9	Black walnut,
						Loblolly pine-------	90	9	loblolly pine.
						Southern red oak----	80	---	
						Water oak	90	---	
TpB---------- Tipp	9W8	Slight	Slight	Severe	Moderate	Cherrybark oak------	95	9	Black walnut,
						Loblolly pine-------	90	9	loblolly pine.
						Southern red oak----	80	---	
						Water oak----------	90	---	
TrA---------- Tuckerman	6W	Slight	Moderate	Severe	Severe	Water oak----------	90	6	Eastern
						Green ash----------	100	---	cottonwood,
						Eastern cottonwood--	95	---	sweetgum,
						Nuttall oak---------	95	---	cherrybark
						Willow oak----------	95	---	oak, Nuttall
						Sweetgum----------	---	---	oak, water
									oak, willow
									oak.
TuA---------- Tuckerman	6W	Slight	Moderate	Severe	Severe	Water oak----------	90	6	Water oak,
						Green ash----------	90	---	willow oak,
						Overcup oak---------	90	---	eastern
						Nuttall oak---------	90	---	cottonwood,
						Willow oak----------	90	---	Nuttall oak.
WvA, WvB, WvC--- Wiville	9A	Slight	Slight	Slight	Slight	Cherrybark oak------	95	9	Cherrybark oak,
						Eastern cottonwood--	100	---	eastern
						Green ash----------	80	---	cottonwood,
						Sweetgum----------	90	---	shortleaf
									pine.
YaB---------- Yancopin	8W	Slight	Moderate	Moderate	Moderate	Cherrybark oak------	90	8	Cherrybark oak,
						Green ash----------	100	---	pecan, Shumard
						Nuttall oak---------	90	---	oak, water
						Water oak----------	110	---	oak.
						Pecan---------------	---	---	
						Eastern cottonwood--	---	---	
						Willow oak----------	---	---	
YpB---------- Yancopin	8W	Slight	Moderate	Severe	Moderate	Cherrybark oak------	90	8	Cherrybark oak,
						Green ash----------	100	---	pecan, Shumard
						Nuttall oak---------	90	---	oak, water
						Water oak----------	110	---	oak.
						Pecan---------------	---	---	
						Eastern cottonwood--	---	---	
						Willow oak----------	---	---	

* Productivity class is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

** See description of the map unit for composition and behavior characteristics of the map unit.

Table 7.--Recreational Development

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
AmA Amagon	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
AsB Askew	Moderate: wetness.	Moderate: wetness.	Moderate: slope, wetness.	Slight.
BsA Teksob	Slight	Slight	Slight	Slight.
BsB, BsC Teksob	Slight	Slight	Moderate: slope.	Slight.
BuC Bulltown	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.
CaA Calhoun	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
ClA, ClB Calloway	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.
DbA Dubbs	Slight	Slight	Slight	Slight.
DbB, DbC Dubbs	Slight	Slight	Moderate: slope.	Slight.
DuA Dundee	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
FbA*: Foley	Severe: wetness, percs slowly.	Severe: wetness, percs slowly, excess sodium.	Severe: wetness, percs slowly.	Severe: wetness.
Bonn	Severe: wetness, percs slowly.	Severe: wetness, percs slowly, excess sodium.	Severe: wetness, percs slowly.	Severe: wetness.
FdA Forestdale	Severe: flooding, wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.

See footnote at end of table.

Table 7.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
GrB, GrC Grenada	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.
GuB, GuC Grubbs	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Moderate: wetness.
HeA Henry	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
HmA, HmB Hillemann	Severe: wetness, percs slowly, excess sodium.	Severe: percs slowly, excess sodium.	Severe: wetness, percs slowly, excess sodium.	Moderate: wetness.
JpA Jackport	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.
KbA Kobel	Severe: flooding, wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
KlA Kobel	Severe: flooding, wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, flooding.	Severe: wetness.
KoA Kobel	Severe: flooding, ponding, percs slowly.	Severe: ponding, percs slowly.	Severe: ponding, flooding.	Severe: ponding.
LfA Lafe	Severe: wetness, percs slowly, excess sodium.	Severe: percs slowly, excess sodium.	Severe: wetness, percs slowly, excess sodium.	Moderate: wetness.
Lv Levee	Variable	Variable	Variable	Variable.
McA McCrory	Severe: wetness, excess sodium.	Severe: wetness, excess sodium.	Severe: wetness, excess sodium.	Severe: wetness.
OaB Oaklimeter	Severe: flooding.	Moderate: wetness.	Slight.	Slight.
OvA Overcup	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.

See footnote at end of table.

Table 7.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
PaB Patterson	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.
TaB Taylorbay	Severe: flooding.	Slight	Slight	Slight.
TbB Taylorbay	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.
TcA Tichnor	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.
TiB Tipp	Severe: flooding.	Moderate: wetness, percs slowly.	Moderate: percs slowly.	Slight.
TpB Tipp	Severe: flooding.	Moderate: flooding, wetness, percs slowly.	Severe: flooding.	Moderate: flooding.
TrA, TuA Tuckerman	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.
W. Water				
WvA Wiville	Slight	Slight	Slight	Slight.
WvB, WvC Wiville	Slight	Slight	Moderate: slope.	Slight.
YaB Yancopin	Severe: flooding, wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.
YpB Yancopin	Severe: flooding, wetness.	Moderate: flooding, wetness, percs slowly.	Severe: wetness, flooding.	Moderate: wetness, flooding.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 8.--Building Site Development

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Shallow excavations	Dwellings without basements	Small commercial buildings	Local roads and streets
AmA Amagon	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.
AsB Askew	Severe: cutbanks cave, wetness.	Moderate: wetness, shrink-swell.	Moderate: wetness, shrink-swell.	Moderate: low strength, wetness.
BsA, BsB Teksob	Severe: cutbanks cave.	Slight	Slight	Slight.
BsC Teksob	Severe: cutbanks cave.	Slight	Moderate: slope.	Slight.
BuC Bulltown	Severe: cutbanks cave.	Slight	Moderate: slope.	Slight.
CaA Calhoun	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.
ClA, ClB Calloway	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength.
DbA, DbB Dubbs	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.
DbC Dubbs	Slight	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.
DuA Dundee	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength.
FbA*: Foley	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.
Bonn	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.
FdA Forestdale	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, shrink-swell, wetness.

See footnote at end of table.

Table 8.--Building Site Development--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Small commercial buildings	Local roads and streets
GrB Grenada	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: low strength.
GrC Grenada	Severe: wetness.	Moderate: wetness.	Moderate: wetness, slope.	Severe: low strength.
GuB, GuC Grubbs	Severe: wetness.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.
HeA Henry	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.
HmA, HmB Hillemann	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength.
JpA Jackport	Severe: cutbanks cave, wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.
KbA, KlA Kobel	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.
KoA Kobel	Severe: ponding, wetness.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: shrink-swell, low strength, ponding.
LfA Lafe	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength.
Lv Levee	Variable	Variable	Variable	Variable.
McA McCrory	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
OaB Oaklimeter	Severe: wetness.	Severe: flooding.	Severe: flooding.	Severe: low strength, flooding.
OvA Overcup	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.
PaB Patterson	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.

See footnote at end of table.

Table 8.--Building Site Development--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Small commercial buildings	Local roads and streets
TaB Taylorbay	Moderate: wetness.	Severe: flooding.	Severe: flooding.	Severe: low strength.
TbB Taylorbay	Moderate: wetness, flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding, low strength.
TcA Tichnor	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.
TiB Tipp	Moderate: too clayey, wetness.	Severe: flooding.	Severe: flooding.	Severe: low strength.
TpB Tipp	Moderate: too clayey, wetness, flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength, flooding.
TrA, TuA Tuckerman	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.
W. Water				
WvA, WvB Wiville	Severe: cutbanks cave.	Slight	Slight	Slight.
WvC Wiville	Severe: cutbanks cave.	Slight	Moderate: slope.	Slight.
YaB Yancopin	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength.
YpB Yancopin	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 9.--Sanitary Facilities

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AmA Amagon	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Severe: wetness.	Poor: wetness.
AsB Askew	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness, seepage.	Severe: seepage.	Fair: too clayey, wetness.
BsA, BsB, BsC Teksob	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Slight	Fair: too clayey.
BuC Bulltown	Severe: poor filter.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
CaA Calhoun	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Severe: wetness.	Poor: wetness.
ClA Calloway	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Severe: wetness.	Poor: wetness.
ClB Calloway	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness.	Severe: wetness.	Poor: wetness.
DbA, DbB, DbC Dubbs	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Slight	Fair: too clayey.
DuA Dundee	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Severe: wetness.	Poor: wetness.
FbA*: Foley	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness, excess sodium.	Severe: wetness.	Poor: wetness, excess sodium.
Bonn	Severe: wetness, percs slowly.	Slight	Severe: wetness, excess sodium.	Severe: wetness.	Poor: wetness, excess sodium.
FdA Forestdale	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
GrB, GrC Grenada	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.

See footnote at end of table.

Table 9.--Sanitary Facilities--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
GuB, GuC---------- Grubbs	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
HeA---------- Henry	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Severe: wetness.	Poor: wetness.
HmA, HmB---------- Hillemann	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness, excess sodium.	Severe: wetness.	Poor: wetness, excess sodium.
JpA---------- Jackport	Severe: wetness, percs slowly.	Slight----------	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
KbA---------- Kobel	Severe: wetness, percs slowly.	Slight----------	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
KlA---------- Kobel	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
KoA---------- Kobel	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.
LfA---------- Lafe	Severe: wetness, percs slowly.	Slight----------	Severe: wetness, excess sodium.	Severe: wetness.	Poor: wetness, excess sodium.
Lv---------- Levee	Variable---------	Variable---------	Variable---------	Variable---------	Variable.
McA---------- McCrory	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness, excess sodium.	Severe: wetness.	Poor: wetness, excess sodium.
OaB---------- Oaklimeter	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: too clayey, wetness.
OvA---------- Overcup	Severe: wetness, percs slowly.	Slight----------	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
PaB---------- Patterson	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Poor: wetness.

See footnote at end of table.

Table 9.--Sanitary Facilities--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
TaB Taylorbay	Severe: percs slowly.	Moderate: seepage, wetness.	Severe: wetness.	Moderate: flooding, wetness.	Fair: too clayey.
TbB Taylorbay	Severe: flooding, percs slowly.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Fair: too clayey.
TcA Tichnor	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
TiB Tipp	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
TpB Tipp	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack.
TrA, TuA Tuckerman	Severe: flooding, wetness, percs slowly.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Poor: wetness.
W. Water					
WvA, WvB, WvC Wiville	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Slight	Fair: too clayey.
YaB Yancopin	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
YpB Yancopin	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 10.--Construction Materials

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
AmA Amagon	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
AsB Askew	Fair: low strength, wetness.	Probable	Improbable: too sandy.	Fair: too clayey.
BsA, BsB, BsC Teksob	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
BuC Bulltown	Good	Probable	Improbable: too sandy.	Fair: too sandy.
CaA Calhoun	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
ClA, ClB Calloway	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
DbA, DbB, DbC Dubbs	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
DuA Dundee	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
FbA*:				
Foley	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, excess sodium.
Bonn	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, excess sodium.
FdA Forestdale	Poor: shrink-swell, low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
GrB, GrC Grenada	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
GuB, GuC Grubbs	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
HeA Henry	Severe: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.

See footnote at end of table.

Table 10.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
HmA, HmB Hillemann	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess sodium.
JpA Jackport	Poor: shrink-swell, low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
KbA, KlA, KoA Kobel	Poor: shrink-swell, low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
LfA Lafe	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess sodium.
Lv Levee	Variable	Improbable: excess fines.	Improbable: excess fines.	Variable.
McA McCrory	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, excess sodium.
OaB Oaklimeter	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
OvA Overcup	Poor: shrink-swell, low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
PaB Patterson	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
TaB, TbB Taylorbay	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
TcA Tichnor	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Tib, TpB Tipp	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
TrA, TuA Tuckerman	Poor: wetness.	Probable	Improbable: too sandy.	Poor: wetness.
W. Water				
WvA, WvB, WvC Wiville	Good	Probable	Improbable: too sandy.	Fair: too clayey.
YaB, YpB Yancopin	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 11.--Water Management

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Drainage	Features affecting-- Irrigation	Terraces and diversions	Grassed waterways
AmA---------- Amagon	Slight---------	Severe: piping, wetness.	Percs slowly---	Percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
AsB---------- Askew	Severe: seepage.	Severe: piping.	Favorable------	Soil blowing---	Erodes easily, wetness, soil blowing.	Favorable.
BsA, BsB---------- Teksob	Severe: seepage.	Severe: piping.	Deep to water	Favorable------	Favorable------	Favorable.
BsC---------- Teksob	Severe: seepage.	Severe: piping.	Deep to water	Slope----------	Favorable------	Favorable.
BuC---------- Bulltown	Severe: seepage.	Severe: piping.	Deep to water	Slope, fast intake, soil blowing.	Soil blowing---	Droughty.
CaA---------- Calhoun	Slight---------	Severe: piping, wetness.	Percs slowly---	Percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
ClA, ClB---------- Calloway	Moderate: seepage.	Severe: piping, wetness.	Percs slowly---	Percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, rooting depth.
DbA, DbB---------- Dubbs	Severe: seepage.	Severe: piping.	Deep to water	Erodes easily	Erodes easily	Erodes easily.
DbC---------- Dubbs	Severe: seepage.	Severe: piping.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
DuA---------- Dundee	Moderate: seepage.	Severe: piping, wetness.	Favorable------	Erodes easily	Erodes easily, wetness.	Erodes easily.
FbA*:						
Foley----------	Slight---------	Severe: Piping, wetness, excess sodium.	Percs slowly, excess sodium.	Percs slowly, erodes easily, excess sodium.	Erodes easily, wetness, percs slowly.	Wetness, excess sodium, erodes easily.
Bonn----------	Slight---------	Severe: Piping, wetness, excess sodium.	Percs slowly, excess sodium.	Percs slowly, erodes easily, excess sodium.	Erodes easily, wetness, percs slowly.	Wetness, excess sodium, erodes easily.
FdA---------- Forestdale	Slight---------	Severe: hard to pack, wetness.	Percs slowly, flooding.	Percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.

See footnote at end of table.

Table 11.--Water Management--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
GrB Grenada	Moderate: seepage.	Severe: piping, wetness.	Percs slowly	Percs slowly, erodes easily.	Erodes easily, wetness.	Erodes easily, rooting depth, percs slowly.
GrC Grenada	Moderate: seepage, slope.	Severe: piping, wetness.	Percs slowly, slope.	Slope, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Erodes easily, rooting depth, percs slowly.
GuB Grubbs	Slight	Moderate: piping, wetness.	Percs slowly	Percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Erodes easily, percs slowly.
GuC Grubbs	Moderate: slope.	Moderate: piping, wetness.	Percs slowly, slope.	Slope, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Erodes easily, percs slowly.
HeA Henry	Moderate: seepage.	Severe: piping, wetness.	Percs slowly	Percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, rooting depth, percs slowly.
HmA, HmB Hillemann	Slight	Severe: piping, wetness, excess sodium.	Percs slowly, excess sodium.	Percs slowly, erodes easily, excess sodium.	Erodes easily, wetness, percs slowly.	Wetness, excess sodium, erodes easily.
JpA Jackport	Slight	Severe: hard to pack, wetness.	Percs slowly	Percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
KbA Kobel	Slight	Severe: hard to pack, wetness.	Percs slowly	Percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
KlA Kobel	Slight	Severe: hard to pack, wetness.	Percs slowly, flooding.	Percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
KoA Kobel	Slight	Severe: hard to pack, ponding, wetness.	Ponding, percs slowly, flooding.	Ponding, percs slowly, erodes easily.	Erodes easily, ponding, percs slowly.	Wetness, erodes easily, percs slowly.
LfA Lafe	Slight	Severe: piping, wetness, excess sodium.	Percs slowly, excess sodium.	Percs slowly, erodes easily, excess sodium.	Erodes easily, wetness, percs slowly.	Wetness, excess sodium, erodes easily.
Lv Levee	Variable	Variable	Variable	Variable	Variable	Variable.
McA McCrory	Slight	Severe: piping, wetness, excess sodium.	Excess sodium	Soil blowing, excess sodium.	Wetness, soil blowing.	Wetness, excess sodium.
OaB Oaklimeter	Moderate: seepage.	Severe: piping, wetness.	Flooding	Erodes easily, flooding.	Erodes easily, wetness.	Erodes easily.

See footnote at end of table.

Table 11.--Water Management--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
OvA---- Overcup	Slight	Severe: hard to pack, wetness.	Percs slowly	Percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
PaB---- Patterson	Severe: seepage.	Severe: piping, wetness.	Cutbanks cave	Soil blowing	Wetness, soil blowing.	Wetness.
TaB---- Taylorbay	Moderate: seepage.	Severe: piping.	Deep to water	Erodes easily	Erodes easily	Erodes easily.
TbB---- Taylorbay	Moderate: seepage.	Severe: piping.	Deep to water	Erodes easily, flooding.	Erodes easily	Erodes easily.
TcA---- Tichnor	Moderate: seepage.	Severe: piping, wetness.	Flooding	Erodes easily, flooding.	Erodes easily, wetness.	Wetness, erodes easily.
TiB---- Tipp	Slight	Moderate: hard to pack, wetness.	Percs slowly	Percs slowly	Wetness	Percs slowly.
TpB---- Tipp	Slight	Moderate: hard to pack, wetness.	Percs slowly	Percs slowly, flooding.	Wetness	Percs slowly.
TrA---- Tuckerman	Severe: seepage.	Severe: piping, wetness.	Flooding	Flooding	Wetness	Wetness.
TuA---- Tuckerman	Severe: seepage.	Severe: piping, wetness.	Flooding	Erodes easily, flooding.	Erodes easily, wetness.	Wetness, erodes easily.
W. Water						
WvA, WvB---- Wiville	Severe: seepage.	Severe: piping.	Deep to water	Soil blowing	Soil blowing	Favorable.
WvC---- Wiville	Severe: seepage.	Severe: piping.	Deep to water	Slope, soil blowing.	Soil blowing	Favorable.
YaB---- Yancopin	Moderate: seepage.	Severe: wetness.	Favorable	Erodes easily	Erodes easily, wetness.	Wetness, erodes easily.
YpB---- Yancopin	Moderate: seepage.	Severe: wetness.	Flooding	Erodes easily, flooding.	Erodes easily, wetness.	Wetness, erodes easily.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 12.--Engineering Index Properties

(The symbol < means less than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments 3-10 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
AmA-------------- Amagon	0-3 3-15	Silt loam-------- Silt loam--------	CL-ML, CL CL-ML, ML, CL	A-4, A-6 A-4	0 0	100 100	100 100	90-100 85-100	70-90 70-90	21-34 <30	4-14 3-9
	15-53	Silt loam, silty clay loam.	CL	A-6, A-4, A-7	0	100	100	85-100	60-95	28-43	9-21
	53-80	Silt loam, loam, fine sandy loam, silty clay loam.	CL, CL-ML, SC-SM, SC	A-4, A-6	0	100	100	70-100	40-95	23-39	6-18
AsB-------------- Askew	0-5 5-26	Fine sandy loam Silty clay loam, silt loam, clay loam, loam.	SM, SC-SM CL, CL-ML	A-4 A-6, A-4	0 0	100 100	100 100	70-85 85-100	40-50 60-95	<20 23-38	NP-5 7-15
	26-41	Sandy loam, fine sandy loam, loam.	SM, CL-ML, ML, SC-SM, SC, CL	A-2, A-4	0	100	100	60-95	30-75	<25	3-8
	41-72	Sandy loam, loamy sand, loamy fine sand, sand.	SM, SP-SM	A-2, A-3, A-4	0	100	100	50-70	5-40	<20	NP-3
BsA, BsB, BsC---- Teksob	0-10	Loam--------------	CL, ML, CL-ML	A-4	0	100	100	85-95	60-75	<25	3-8
	10-20	Fine sandy loam, sandy loam, loam.	SC-SM, SC, CL-ML, CL	A-2, A-4	0	100	100	60-95	30-75	<25	4-8
	20-40	Sandy clay loam, clay loam, loam.	SC, SC-SM, CL, CL-ML	A-4, A-6	0	100	100	80-100	35-80	23-34	7-13
	40-51	Fine sandy loam, sandy loam, loam.	SM, SC-SM, SC, ML, CL-ML, CL	A-2, A-4	0	100	100	60-95	30-75	<25	3-8
	51-80	Fine sandy loam, sandy loam, fine sand, loamy sand.	SM, SC-SM	A-2, A-4, A-3	0	100	100	50-85	15-50	<20	NP-5
BuC-------------- Bulltown	0-8 8-26	Loamy fine sand Loamy fine sand, loamy sand.	SM SM	A-2, A-4 A-2, A-4	0 0	100 100	100 100	70-85 50-85	30-45 15-45	<20 <20	NP NP
	26-51	Fine sandy loam, sandy clay loam, loam.	SC-SM, SC, CL-ML, CL	A-4, A-6	0	100	100	70-95	40-75	20-30	5-11
	51-69	Fine sandy loam, loamy fine sand, loamy sand, sandy loam.	SM, SC-SM	A-2, A-4	0	100	100	50-85	15-50	<25	NP-7
	69-80	Loamy sand, loamy fine sand, fine sand, sand.	SM, SP-SM	A-2, A-3	0	100	100	50-85	5-45	<20	NP
CaA-------------- Calhoun	0-6 6-16	Silt loam-------- Silt loam--------	CL-ML, CL CL-ML, CL	A-4, A-6 A-4, A-6	0 0	100 100	100 100	90-100 90-100	70-90 70-90	21-32 21-32	4-13 4-13
	16-54	Silty clay loam, silt loam.	CL	A-6	0	100	100	90-100	70-95	30-40	11-20
	54-72	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-4	0	100	100	90-100	70-95	21-39	4-18

See footnote at end of table.

Table 12.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments 3-10 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
ClA, ClB	0-5	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	90-100	70-90	21-32	4-13
Calloway	5-8	Silt loam, silt	ML, CL-ML, CL	A-4	0	100	100	90-100	70-90	<30	NP-9
	8-18	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	100	100	90-100	70-95	21-39	4-18
	18-23	Silt loam, silt	ML, CL-ML	A-4	0	100	100	90-100	70-100	<25	NP-7
	23-42	Silt loam, silty clay loam.	CL	A-6, A-4	0	100	100	90-100	70-95	26-40	8-20
	42-72	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	100	100	90-100	70-95	21-40	4-20
DbA, DbB, DbC	0-5	Silt loam	ML, CL-ML, CL	A-4	0	100	100	90-100	70-90	<30	3-8
Dubbs	5-12	Silt loam, loam	ML, CL-ML, CL	A-4	0	100	100	85-100	60-90	<30	3-8
	12-50	Silty clay loam, clay loam, silt loam, loam.	CL	A-6	0	100	100	85-100	60-95	30-40	11-20
	50-60	Loam, silt loam, very fine sandy loam.	CL-ML, CL	A-4, A-6	0	100	100	85-100	50-90	21-34	4-14
	60-72	Loam, fine sandy loam, sandy loam, loamy fine sand.	ML, CL-ML, SM, SC-SM	A-2, A-4	0	100	100	60-95	25-75	<25	NP-7
DuA	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	100	100	90-100	70-90	21-32	4-13
Dundee	6-32	Silty clay loam, clay loam, silt loam.	CL	A-6, A-7, A-4	0	100	100	90-100	70-95	28-43	9-21
	32-72	Loam, very fine sandy loam, silt loam.	CL, CL-ML	A-4, A-6	0	100	100	85-100	50-90	23-35	6-15
FbA*:											
Foley	0-9	Silt loam	CL, CL-ML	A-4, A-6	0	100	100	90-100	70-90	21-30	4-11
	9-20	Silt loam, silt	CL, CL-ML, ML	A-4	0	100	100	90-100	70-100	<30	NP-9
	20-67	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	100	90-100	70-95	30-48	11-25
	67-80	Silt loam, silty clay loam.	ML, CL-ML, CL	A-4, A-6	0	100	100	90-100	70-95	20-39	3-18
Bonn	0-5	Silt loam	CL, CL-ML	A-4, A-6	0	100	100	90-100	70-90	21-30	4-11
	5-9	Silt loam	ML, CL-ML, CL	A-4	0	100	100	90-100	70-90	<28	NP-9
	9-55	Silt loam, silty clay loam.	CL	A-6, A-7, A-4	0	95-100	90-100	90-100	70-95	28-43	9-21
	55-72	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-4	0	100	95-100	90-100	70-95	25-39	7-18
FdA	0-6	Silty clay loam	CL, CH	A-7	0	100	100	95-100	85-95	42-56	22-33
Forestdale	6-58	Silty clay, silty clay loam.	CH	A-7	0	100	100	95-100	85-95	50-66	28-41
	58-72	Silty clay loam, silt loam.	CL	A-6, A-7, A-4	0	100	100	90-100	70-95	26-50	9-28

See footnote at end of table.

Table 12.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
GrB, GrC--------- Grenada	0-4 4-22	Silt loam-------- Silt loam, silty clay loam.	ML, CL-ML CL	A-4, A-6 A-6, A-4	0 0	100 100	100 100	90-100 90-100	70-90 70-95	<30 27-40	3-11 9-18
	22-24 24-50 50-72	Silt loam, silt Silt loam, silty clay loam. Silt loam, silty clay loam.	CL-ML, CL CL, CL-ML CL, CL-ML	A-4 A-6, A-4 A-6, A-4	0 0 0	100 100 100	100 100 100	90-100 90-100 90-100	70-100 70-95 70-95	<25 25-40 25-40	NP-7 7-20 7-20
GuB, GuC--------- Grubbs	0-5 5-26	Silt loam-------- Clay, silty clay, silty clay loam.	ML, CL-ML, CL CH, CL	A-4, A-6 A-6, A-7	0 0	100 100	100 100	90-100 90-100	70-90 85-95	20-30 39-66	3-11 18-39
	26-52 52-64 64-76	Silty clay, silty clay loam, silt loam. Silty clay loam, silt loam. Silty clay loam, silt loam.	CH, CL CL CL-ML, CL	A-7, A-6 A-6, A-7 A-6, A-4	0 0 0	100 100 100	100 100 100	90-100 90-100 90-100	70-95 70-95 70-95	34-57 30-48 25-39	14-32 11-25 7-18
HeA-------------- Henry	0-6 6-22 22-60 60-72	Silt loam-------- Silt loam-------- Silty clay loam, silt loam. Silt loam-------- 	ML, CL-ML, CL ML, CL-ML, CL CL ML, CL-ML, CL	A-4 A-4 A-4, A-6 A-4	0 0 0 0	100 100 100 100	100 100 100 100	90-100 90-100 90-100 90-100	70-90 70-90 70-95 70-90	<30 <30 28-40 <30	3-9 NP-9 9-20 3-10
HmA, HmB--------- Hillemann	0-8 8-15 15-23 23-28 28-80	Silt loam-------- Silt loam, silt loam. Silty clay loam, silty clay. Silty clay loam, silty clay, silt loam. Silt loam, silty clay loam.	CL-ML, CL ML, CL-ML, CL CL, CH CL, CH CL	A-4, A-6 A-4, A-6 A-6, A-7 A-6, A-7 A-6, A-7	0 0 0 0 0	100 100 100 100 100	100 100 100 100 100	90-100 90-100 95-100 90-100 90-100	70-90 70-90 85-95 70-95 70-95	20-30 <30 35-52 34-52 30-48	4-11 3-11 15-28 14-28 11-25
JpA-------------- Jackport	0-5 5-12 12-58 58-72	Silty clay loam Clay, silty clay Clay, silty clay Silty clay, silty clay loam.	CL, CH CH CH CH, CL	A-7 A-7 A-7 A-7	0 0 0 0	100 100 100 100	100 100 100 100	95-100 90-100 90-100 95-100	85-95 75-95 75-95 85-95	42-56 56-76 56-76 42-66	22-33 33-49 33-49 22-41
KbA, KlA, KoA---- Kobel	0-4 4-60 60-72	Silty clay loam Clay, silty clay, silty clay loam. Sandy clay, silty clay, silty clay loam, clay loam.	CL, CH CH CH, CL	A-7 A-7 A-7	0 0 0	100 100 100	100 100 100	95-100 95-100 85-95	85-95 75-95 50-95	42-56 50-76 46-66	22-33 28-49 25-41
LfA-------------- Lafe	0-4 4-8 8-22 22-72	Silt loam-------- Silt loam-------- Silt loam, silty clay loam. Silt loam, silty clay loam.	CL-ML, CL CL-ML, CL CL CL	A-4, A-6 A-4, A-6 A-4, A-6, A-7 A-6, A-7	0 0 0 0	100 100 100 100	100 100 100 100	90-100 90-100 90-100 90-100	70-90 70-90 70-95 70-95	21-35 21-35 28-43 30-48	4-15 4-15 9-21 11-25

See footnote at end of table.

Table 12.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments 3-10 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Lv Levee	0-60	Variable	---	---	---	---	---	---	---	---	---
McA McCrory	0-7	Fine sandy loam	SM, SC-SM	A-4	0	100	100	70-85	40-50	<25	NP-7
	7-15	Fine sandy loam	SM, SC-SM	A-4	0	100	100	70-85	40-50	<20	NP-5
	15-70	Sandy clay loam, fine sandy loam, loam.	SC, CL, CL-ML, SC-SM	A-4, A-6	0	100	100	70-95	40-75	20-38	5-15
	70-98	Loamy fine sand, fine sandy loam, loam, sandy loam, fine sand.	SM, SC-SM	A-4, A-2	0	100	100	50-85	15-50	<25	NP-7
OaB Oaklimeter	0-6	Silt loam	ML, CL, CL-ML	A-4	0	100	100	90-100	70-90	<25	NP-8
	6-30	Silt loam, loam	ML, CL, CL-ML	A-4	0	100	100	85-100	60-90	<30	NP-9
	30-72	Silt loam, silty clay loam, loam.	CL, CL-ML	A-4, A-6	0	100	100	85-100	60-95	21-41	4-20
OvA Overcup	0-4	Silt loam	CL	A-4, A-6	0	100	100	90-100	70-90	30-43	12-22
	4-8	Silt loam	CL	A-4, A-6	0	100	100	90-100	70-90	28-43	11-22
	8-61	Silty clay, clay	CH	A-7	0	100	100	90-100	75-95	56-76	33-49
	61-72	Silty clay, silty clay loam.	CL, CH	A-7	0	100	100	95-100	85-95	43-66	22-41
PaB Patterson	0-10	Fine sandy loam	SM, SC-SM	A-4	0	100	100	70-85	40-50	<25	NP-7
	10-33	Fine sandy loam, sandy loam, loamy fine sand.	SM, SC-SM	A-2, A-4	0	100	100	70-85	25-50	<20	NP-6
	33-53	Sandy clay loam, sandy loam, fine sandy loam.	SC	A-2, A-4, A-6	0	100	100	60-90	30-50	28-39	9-18
	53-67	Fine sandy loam, loam, sandy loam.	SC-SM, SC	A-2, A-4	0	100	100	60-85	30-50	20-30	4-11
	67-90	Loamy fine sand, sandy loam, fine sandy loam, fine sand.	SM, SC-SM	A-2, A-4	0	100	100	65-85	20-50	<25	NP-7
TaB, TbB Taylorbay	0-25	Silt loam	CL, CL-ML	A-4, A-6	0	100	100	90-100	70-90	28-35	7-15
	25-56	Silt loam, silty clay loam.	CL	A-4, A-6, A-7	0	100	100	90-100	70-95	28-43	9-21
	56-72	Silt loam, silty clay loam, clay loam, loam.	CL	A-6, A-7	0	100	100	85-100	60-95	30-48	11-25
TcA Tichnor	0-6	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	90-100	70-95	20-35	4-15
	6-27	Silt loam, silt	ML, CL-ML, CL	A-4, A-6	0	100	100	90-100	70-100	<35	NP-15
	27-72	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7	0	100	100	90-100	70-95	25-48	7-25
TiB, TpB Tipp	0-10	Silty clay loam	CL	A-6, A-7,	0	100	100	95-100	85-95	35-43	15-21
	10-47	Silty clay, silty clay loam.	CL, CH	A-7	0	100	100	95-100	85-95	43-57	21-32
	47-77	Silty clay loam, silty clay.	CL, CH	A-6, A-7	0	100	100	95-100	80-95	39-52	18-28

See footnote at end of table.

Table 12.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
TrA--- Tuckerman	0-7	Loam---	ML, CL-ML, CL	A-4	0	100	100	85-95	60-75	20-30	3-11
	7-18	Fine sandy loam, loam.	ML, CL-ML, SM, SC-SM	A-4	0	100	100	70-95	40-75	<25	NP-7
	18-48	Sandy clay loam, loam, clay loam.	CL, SC	A-4, A-6, A-7	0	100	100	80-100	35-80	28-43	9-21
	48-57	Fine sandy loam, loam, sandy loam.	CL-ML, CL, SC-SM, SC	A-2-4, A-4	0	100	100	60-95	30-75	20-30	4-11
	57-86	Loamy fine sand, loam, sandy loam, sand.	SM, SC-SM, CL-ML, SP-SM	A-2-4, A-4	0	100	100	50-95	5-75	<30	NP-9
TuA--- Tuckerman	0-6	Silty clay loam	CL	A-6, A-7-6	0	100	100	95-100	85-95	35-48	15-25
	6-18	Fine sandy loam, loam.	ML, CL-ML, SM, SC-SM	A-4	0	100	100	70-95	40-75	<25	NP-7
	18-48	Sandy clay loam, loam, clay loam.	CL, SC	A-4, A-6, A-7	0	100	100	80-100	35-80	28-43	9-21
	48-57	Fine sandy loam, loam, sandy loam.	CL-ML, CL, SC-SM, SC	A-2-4, A-3, A-4	0	100	100	60-95	30-75	20-30	4-11
	57-86	Loamy fine sand, loam, sandy loam, sand.	SM, SC-SM, SP-SM, CL-ML	A-2-4, A-3, A-4	0	100	100	50-95	5-75	<30	NP-9
W. Water											
WvA, WvB, WvC--- Wiville	0-11	Fine sandy loam	SM	A-4	0	100	100	70-85	40-50	<20	NP-3
	11-18	Fine sandy loam, sandy loam, loam.	SM, SC-SM, ML, CL-ML	A-2, A-4	0	100	100	60-95	30-75	<20	NP-5
	18-56	Fine sandy loam, loam, sandy clay loam, clay loam.	SC-SM, SC, CL-ML, CL	A-4, A-6	0	100	100	70-100	35-80	16-34	3-13
	56-64	Fine sandy loam, sandy loam, loamy sand, loamy fine sand.	SM, SC-SM	A-2, A-4	0	100	100	50-85	15-50	<25	NP-7
	64-80	Loamy fine sand, loamy sand, fine sand, sand.	SM, SP-SM	A-2, A-4, A-3	0	100	100	50-85	5-50	<20	NP
YaB, YpB--- Yancopin	0-4	Silty clay loam	CL	A-6, A-7	0	100	100	95-100	85-95	35-48	15-25
	4-56	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	90-100	70-95	30-48	11-25
	56-76	Silty clay loam, silt loam, loam.	CL	A-6, A-7	0	100	100	85-100	60-95	30-48	11-25

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 13.--Physical and Chemical Properties of the Soils

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH				Pct
AmA	0-3	0-25	1.35-1.50	0.6-2.0	0.14-0.20	4.5-6.5	Low	0.43	5	.5-2
Amagon	3-15	8-18	1.35-1.50	0.6-2.0	0.14-0.20	4.5-6.5	Low	0.43		
	15-53	18-35	1.35-1.50	0.06-0.2	0.13-0.20	4.5-6.5	Moderate	0.37		
	53-80	12-30	1.35-1.60	0.02-2.0	0.10-0.20	5.1-7.8	Low	0.43		
AsB	0-5	5-15	1.40-1.50	2.0-6.0	0.10-0.14	5.1-6.5	Low	0.28	5	.5-3
Askew	5-26	18-35	1.35-1.50	0.6-2.0	0.13-0.20	4.5-6.5	Moderate	0.37		
	26-41	10-20	1.35-1.60	0.6-6.0	0.10-0.19	4.5-6.5	Low	0.24		
	41-72	3-10	1.45-1.65	6.0-20	0.04-0.13	4.5-6.5	Low	0.20		
BsA, BsB, BsC	0-10	8-20	1.40-1.50	0.6-2.0	0.13-0.19	5.1-7.3	Low	0.32	5	.5-2
Teksob	10-20	12-20	1.40-1.50	0.6-2.0	0.10-0.19	5.1-7.3	Low	0.32		
	20-40	18-30	1.35-1.50	0.6-2.0	0.13-0.20	5.1-7.3	Low	0.32		
	40-51	8-20	1.40-1.50	0.6-2.0	0.10-0.19	5.1-7.3	Low	0.32		
	51-80	4-15	1.40-1.60	>2.0	0.05-0.14	5.1-7.3	Low	0.24		
BuC	0-8	4-10	1.45-1.65	6.0-20	0.08-0.11	5.1-6.5	Low	0.17	5	.5-2
Bulltown	8-26	4-10	1.45-1.65	6.0-20	0.06-0.11	5.1-6.5	Low	0.17		
	26-51	14-26	1.40-1.55	2.0-6.0	0.10-0.19	4.5-6.0	Low	0.24		
	51-69	8-20	1.45-1.65	2.0-20	0.06-0.14	4.5-6.0	Low	0.20		
	69-80	2-10	1.45-1.65	6.0-20	0.04-0.11	4.5-6.0	Low	0.17		
CaA	0-6	10-22	1.30-1.50	0.6-2.0	0.14-0.20	5.1-6.0	Low	0.49	5	.5-2
Calhoun	6-16	10-22	1.30-1.50	0.6-2.0	0.14-0.20	4.5-6.0	Low	0.49		
	16-54	20-35	1.30-1.50	0.06-0.2	0.14-0.20	4.5-5.5	Moderate	0.43		
	54-72	10-30	1.40-1.50	0.2-0.6	0.14-0.20	4.5-6.0	Low	0.43		
ClA, ClB	0-5	10-22	1.35-1.50	0.6-2.0	0.14-0.20	4.5-6.0	Low	0.49	4	.5-2
Calloway	5-8	6-18	1.35-1.50	0.6-2.0	0.14-0.20	4.5-6.0	Low	0.49		
	8-18	10-30	1.35-1.50	0.6-2.0	0.14-0.20	4.5-6.0	Low	0.49		
	18-23	6-14	1.40-1.55	0.6-2.0	0.14-0.20	4.5-6.0	Low	0.49		
	23-42	16-32	1.45-1.60	0.06-0.2	0.07-0.10	4.5-6.0	Low	0.43		
	42-72	10-32	1.45-1.60	0.06-0.2	0.07-0.10	4.5-6.0	Low	0.43		
DbA, DbB, DbC	0-5	8-18	1.40-1.50	0.6-2.0	0.14-0.20	4.5-6.0	Low	0.37	5	.5-2
Dubbs	5-12	8-18	1.40-1.50	0.6-2.0	0.13-0.20	4.5-6.0	Low	0.37		
	12-50	20-32	1.35-1.45	0.6-2.0	0.13-0.20	4.5-6.0	Moderate	0.37		
	50-60	10-25	1.40-1.50	0.6-2.0	0.13-0.20	4.5-6.0	Low	0.37		
	60-72	5-16	1.40-1.60	2.0-6.0	0.08-0.19	4.5-6.0	Low	0.32		
DuA	0-6	10-22	1.35-1.50	0.6-2.0	0.14-0.20	4.5-6.0	Low	0.43	5	.5-2
Dundee	6-32	18-34	1.35-1.50	0.2-0.6	0.14-0.20	4.5-6.0	Moderate	0.32		
	32-72	12-25	1.35-1.50	0.6-2.0	0.13-0.20	4.5-6.0	Low	0.32		
FbA*:										
Foley	0-9	10-20	1.30-1.50	0.6-2.0	0.14-0.20	4.5-6.0	Low	0.43	5	.5-2
	9-20	6-18	1.30-1.50	0.6-2.0	0.14-0.20	5.1-7.3	Low	0.43		
	20-67	20-40	1.25-1.50	<0.06	0.08-0.12	5.1-9.0	Moderate	0.43		
	67-80	8-30	1.30-1.50	<0.2	0.08-0.12	6.1-9.0	Low	0.49		
Bonn	0-5	10-20	1.30-1.50	0.6-2.0	0.14-0.20	5.1-7.3	Low	0.49	3	.5-2
	5-9	6-18	1.30-1.50	0.6-2.0	0.14-0.20	5.1-7.3	Low	0.49		
	9-55	18-35	1.25-1.50	<0.06	0.08-0.12	5.6-9.0	Moderate	0.49		
	55-72	15-30	1.25-1.50	<0.2	0.08-0.12	6.6-9.0	Low	0.49		

See footnote at end of table.

Table 13.--Physical and Chemical Properties of the Soils--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
FdA	0-6	27-40	1.25-1.40	0.2-0.6	0.14-0.20	4.5-6.0	Moderate	0.37	5	1-3
Forestdale	6-58	35-50	1.20-1.35	<0.06	0.14-0.20	4.5-6.0	High	0.28		
	58-72	10-35	1.25-1.40	0.2-0.6	0.14-0.20	4.5-7.8	Moderate	0.37		
GrB, GrC	0-4	12-20	1.40-1.50	0.6-2.0	0.14-0.20	4.5-6.0	Low	0.49	4-3	.5-2
Grenada	4-22	18-30	1.40-1.50	0.6-2.0	0.14-0.20	4.5-6.0	Low	0.43		
	22-24	6-16	1.35-1.50	0.6-2.0	0.10-0.20	4.5-6.0	Low	0.49		
	24-50	15-32	1.45-1.60	0.06-0.2	0.07-0.10	4.5-6.0	Low	0.37		
	50-72	15-32	1.45-1.60	0.06-0.2	0.07-0.10	5.0-6.5	Low	0.37		
GuB, GuC	0-5	10-20	1.35-1.50	0.6-2.0	0.14-0.20	5.6-6.5	Low	0.43	5	.5-2
Grubbs	5-26	30-60	1.20-1.40	<0.06	0.14-0.20	4.5-6.0	High	0.43		
	26-52	24-50	1.25-1.45	0.06-0.2	0.14-0.20	4.5-6.0	High	0.32		
	52-64	20-40	1.35-1.50	0.06-0.2	0.14-0.20	5.1-7.3	Moderate	0.37		
	64-76	15-30	1.35-1.50	0.2-0.6	0.14-0.20	5.1-7.3	Moderate	0.37		
HeA	0-6	10-18	1.35-1.45	0.6-2.0	0.14-0.20	4.5-5.5	Low	0.49	4	.5-2
Henry	6-22	8-18	1.40-1.50	0.6-2.0	0.14-0.20	4.5-5.5	Low	0.49		
	22-60	18-32	1.45-1.60	0.06-0.2	0.07-0.10	4.5-5.5	Low	0.43		
	60-72	8-20	1.35-1.50	0.2-0.6	0.14-0.20	4.5-6.0	Low	0.49		
HmA, HmB	0-8	10-20	1.35-1.50	0.6-2.0	0.14-0.20	5.1-7.3	Low	0.49	5	.5-2
Hillemann	8-15	8-20	1.35-1.50	0.6-2.0	0.14-0.20	5.1-6.0	Low	0.49		
	15-23	27-45	1.30-1.45	<0.06	0.14-0.20	4.5-6.0	Moderate	0.43		
	23-28	24-45	1.35-1.50	<0.06	0.07-0.10	4.5-6.0	Moderate	0.49		
	28-80	20-40	1.35-1.50	<0.2	0.07-0.10	4.5-8.4	Low	0.49		
JpA	0-5	27-40	1.25-1.40	0.2-0.6	0.14-0.20	4.5-6.5	Moderate	0.37	5	1-3
Jackport	5-12	40-60	1.15-1.30	0.00-0.06	0.14-0.20	4.5-5.5	Very high	0.32		
	12-58	40-60	1.15-1.30	0.00-0.06	0.14-0.20	4.5-5.5	Very high	0.32		
	58-72	27-50	1.20-1.45	<0.2	0.14-0.20	6.1-7.8	High	0.32		
KbA, KlA, KoA	0-4	27-40	1.25-1.40	0.2-0.6	0.14-0.20	5.6-7.3	Moderate	0.37	5	1-3
Kobel	4-60	35-60	1.15-1.40	0.00-0.06	0.14-0.20	6.1-7.8	Very high	0.37		
	60-72	30-50	1.20-1.40	0.06-0.2	0.14-0.20	6.6-8.4	High	0.37		
LfA	0-4	10-25	1.35-1.50	0.6-2.0	0.14-0.20	5.1-6.5	Low	0.49	2	.5-2
Lafe	4-8	10-25	1.35-1.50	0.6-2.0	0.14-0.20	5.1-6.5	Low	0.49		
	8-22	18-35	1.30-1.50	0.06-0.2	0.14-0.20	7.4-9.0	Moderate	0.49		
	22-72	20-40	1.30-1.50	<0.06	0.14-0.20	7.9-9.0	Moderate	0.49		
Lv.										
Levee										
McA	0-7	8-18	1.30-1.60	0.6-2.0	0.10-0.14	5.1-6.5	Low	0.24	5	.5-2
McCrory	7-15	5-16	1.30-1.65	0.6-2.0	0.10-0.14	5.1-6.5	Low	0.20		
	15-70	15-35	1.30-1.60	0.2-0.6	0.05-0.19	5.1-9.0	Low	0.32		
	70-98	5-18	1.40-1.65	0.6-6.0	0.03-0.14	6.6-9.0	Low	0.24		
OaB	0-6	10-16	1.40-1.50	0.6-2.0	0.14-0.20	4.5-5.5	Low	0.43	5	.5-2
Oaklimeter	6-30	7-18	1.40-1.50	0.6-2.0	0.14-0.20	4.5-5.5	Low	0.43		
	30-72	10-32	1.40-1.50	0.6-2.0	0.24-0.20	4.5-5.5	Low	0.43		
OvA	0-4	15-27	1.30-1.45	0.6-2.0	0.14-0.20	5.1-6.0	Low	0.43	5	.5-2
Overcup	4-8	12-27	1.30-1.45	0.6-2.0	0.14-0.20	5.1-6.0	Low	0.43		
	8-61	40-60	1.20-1.35	0.00-0.06	0.14-0.20	4.5-6.5	Very high	0.37		
	61-72	27-50	1.25-1.40	0.06-0.2	0.14-0.20	5.1-8.4	High	0.37		

See footnote at end of table.

Table 13.--Physical and Chemical Properties of the Soils--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH				Pct
PaB	0-10	4-15	1.40-1.50	2.0-6.0	0.10-0.14	4.5-6.5	Low	0.28	5	.5-2
Patterson	10-33	3-12	1.40-1.55	2.0-6.0	0.08-0.14	4.5-5.5	Low	0.24		
	33-53	18-30	1.35-1.50	0.6-2.0	0.10-0.19	4.5-5.5	Low	0.32		
	53-67	10-20	1.35-1.50	0.6-2.0	0.10-0.14	4.5-5.5	Low	0.28		
	67-90	3-15	1.40-1.60	2.0-20	0.05-0.14	4.5-7.3	Low	0.20		
TaB, TbB	0-25	14-27	1.30-1.45	0.6-2.0	0.14-0.20	6.1-7.8	Low	0.37	5	2-4
Taylorbay	25-56	18-35	1.30-1.45	0.2-2.0	0.14-0.20	6.1-7.8	Moderate	0.37		
	56-72	20-40	1.30-1.45	0.2-2.0	0.14-0.20	6.1-7.8	Moderate	0.32		
TcA	0-6	10-27	1.35-1.50	0.6-2.0	0.14-0.20	5.1-6.0	Low	0.43	5	.5-3
Tichnor	6-27	5-27	1.35-1.55	0.6-2.0	0.14-0.20	4.5-6.0	Low	0.43		
	27-72	15-40	1.35-1.45	0.2-0.6	0.14-0.20	4.5-5.5	Low	0.37		
TiB, TpB	0-10	27-35	1.30-1.45	0.2-0.6	0.14-0.20	5.6-7.3	Moderate	0.32	5	2-4
Tipp	10-47	35-50	1.25-1.45	0.06-0.2	0.14-0.20	5.6-7.3	Moderate	0.32		
	47-77	30-45	1.30-1.45	0.2-0.6	0.13-0.20	5.6-7.8	Moderate	0.37		
TrA	0-7	8-20	1.35-1.45	0.6-2.0	0.13-0.19	4.5-6.0	Low	0.32	5	.5-2
Tuckerman	7-18	5-15	1.35-1.50	0.6-2.0	0.10-0.19	4.5-6.0	Low	0.28		
	18-48	18-35	1.35-1.50	0.2-0.6	0.13-0.20	4.5-6.0	Low	0.32		
	48-57	10-20	1.40-1.55	0.6-2.0	0.10-0.19	4.5-6.0	Low	0.28		
	57-86	2-18	1.40-1.60	0.6-20	0.04-0.19	5.1-8.4	Low	0.20		
TuA	0-6	27-40	1.30-1.40	0.2-0.6	0.14-0.20	4.5-6.0	Moderate	0.37	5	.5-3
Tuckerman	6-18	5-15	1.35-1.50	0.6-2.0	0.10-0.19	4.5-6.0	Low	0.28		
	18-48	18-35	1.35-1.50	0.2-0.6	0.13-0.20	4.5-6.0	Low	0.32		
	48-57	10-20	1.40-1.55	0.6-2.0	0.10-0.19	4.5-6.0	Low	0.28		
	57-86	2-18	1.40-1.60	0.6-20	0.04-0.19	5.1-8.4	Low	0.20		
W.										
Water										
WvA, WvB, WvC	0-11	4-10	1.40-1.60	0.6-2.0	0.10-0.14	5.1-7.3	Low	0.24	5	.5-2
Wiville	11-18	8-15	1.40-1.60	0.6-2.0	0.10-0.19	5.1-7.3	Low	0.20		
	18-56	10-30	1.40-1.55	0.6-2.0	0.10-0.20	5.1-6.5	Low	0.24		
	56-64	6-20	1.40-1.65	0.6-6.0	0.06-0.14	5.1-6.5	Low	0.20		
	64-80	2-10	1.45-1.65	6.0-20	0.04-0.11	5.1-7.3	Low	0.15		
YaB, YpB	0-4	27-40	1.25-1.45	0.2-0.6	0.14-0.20	5.6-7.3	Moderate	0.37	5	1-3
Yancopin	4-56	20-40	1.25-1.45	0.2-2.0	0.14-0.20	5.6-7.3	Moderate	0.37		
	56-76	20-40	1.25-1.45	0.2-2.0	0.13-0.20	5.6-7.3	Moderate	0.32		

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 14.--Soil and Water Features

("Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
					Ft			In			
AmA--Amagon	D	None	---	---	0-1.0	Apparent	Dec-Apr	>60	---	High	High.
AsB--Askew	C	None	---	---	2.0-3.0	Apparent	Dec-Apr	>60	---	High	Moderate.
BsA, BsB, BsC--Teksob	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
BuC--Bulltown	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
CaA--Calhoun	D	None	---	---	0-1.0	Apparent	Dec-Apr	>60	---	High	Moderate.
ClA, ClB--Calloway	C	None	---	---	1.0-2.0	Perched	Dec-Apr	>60	---	High	Moderate.
DbA, DbB, DbC--Dubbs	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
DuA--Dundee	C	None	---	---	1.0-2.0	Apparent	Dec-Apr	>60	---	High	Moderate.
FbA*:											
Foley	D	None	---	---	0-1.0	Apparent	Dec-Apr	>60	---	High	Low.
Bonn	D	None	---	---	0-1.0	Apparent	Dec-Apr	>60	---	High	Low.
FdA--Forestdale	D	Frequent	Brief to long.	Dec-May	0-1.0	Apparent	Dec-May	>60	---	High	Moderate.
GrB, GrC--Grenada	C	None	---	---	1.5-2.5	Perched	Dec-Apr	>60	---	Moderate	Moderate.
GuB, GuC--Grubbs	D	None	---	---	1.5-2.5	Perched	Dec-Apr	>60	---	High	Moderate.
HeA--Henry	D	None	---	---	0.5-1.5	Perched	Dec-Apr	>60	---	High	Moderate.
HmA, HmB--Hillemann	C	None	---	---	1.0-2.0	Apparent	Dec-Apr	>60	---	High	Moderate.
JpA--Jackport	D	None	---	---	0-1.0	Perched	Dec-Apr	>60	---	High	High.
KbA--Kobel	D	Rare	---	---	0-1.0	Apparent	Dec-May	>60	---	High	Moderate.

See footnote at end of table.

Table 14.--Soil and Water Features--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
					Ft			In			
KlA—Kobel	D	Frequent	Brief to very long.	Dec-May	0-1.0	Apparent	Dec-May	>60	---	High	Moderate.
KoA—Kobel	D	Frequent	Very long	Dec-Sep	+5-0.0	Apparent	Dec-Sep	>60	---	High	Moderate.
LfA—Lafe	D	None	---	---	1.0-2.0	Apparent	Dec-Apr	>60	---	High	Moderate.
Lv—Levee	---	None	---	---	>6.0	---	---	>10	---	---	---
McA—McCrory	D	None	---	---	0-1.0	Apparent	Dec-Apr	>60	---	High	Moderate.
OaB—Oaklimeter	C	Occasional	Brief	Dec-Apr	2.0-3.0	Apparent	Dec-Apr	>60	---	Moderate	High.
OvA—Overcup	D	None	---	---	0-1.0	Apparent	Dec-Apr	>60	---	High	Moderate.
PaB—Patterson	C	None	---	---	1.0-2.0	Apparent	Dec-Apr	>60	---	Moderate	Moderate.
TaB—Taylorbay	B	Rare	---	---	4.0-6.0	Apparent	Dec-May	>60	---	Low	Low.
TbB—Taylorbay	B	Frequent	Brief to long.	Dec-May	4.0-6.0	Apparent	Dec-May	>60	---	Low	Low.
TcA—Tichnor	C	Frequent	Brief to long.	Dec-May	0-1.0	Apparent	Dec-May	>60	---	High	Moderate.
TiB—Tipp	C	Rare	---	---	2.0-3.0	Apparent	Dec-Apr	>60	---	High	Low.
TpB—Tipp	C	Frequent	Brief to long.	Dec-May	2.0-3.0	Apparent	Dec-May	>60	---	High	Low.
TrA—Tuckerman	C	Frequent	Brief to long.	Dec-May	0-1.0	Apparent	Dec-May	>60	---	High	Moderate.
TuA—Tuckerman	C	Frequent	Brief to long.	Dec-May	0-1.0	Apparent	Dec-May	>60	---	High	Moderate.
W. Water											
WvA, WvB, WvC—Wiville	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
YaB—Yancopin	C	Rare	---	---	1.0-2.0	Apparent	Dec-May	>60	---	High	Moderate.
YpB—Yancopin	C	Frequent	Brief to long.	Dec-May	1.0-2.0	Apparent	Dec-May	>60	---	High	Moderate.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 15.--Physical Test Data for Selected Soils

(All analysis run in duplicate. All data reported on oven dry basis. Dashes indicate that analyses were not made. Sands by seiving; remainder by hydrometer method of Day et al. SSSAP 20: 167-169 (1956). The pedons are typical of the soil series in the survey area. For the location of the pedons, see the section "Soil Series and their Morphology".)

Soil name and pedon number	Horizon	Depth (in)	Fine earth particle-size distribution (percent)											Textural Class
			Sand (mm)						Silt (um)				Clay (um)	
			Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Total (2-0.05)	Coarse (50-20)	Medium (20-5)	Fine (5-2)	Total (50-2)	Total (<2)	
Bulltown														
(S89AR-147-01)	Ap1	0-4	0.0	0.1	2.6	72.3	6.7	81.7	9.2	3.1	1.8	14.1	4.2	LFS
	Ap2	4-8	0.0	0.0	1.4	63.0	14.9	79.3	7.6	5.5	1.3	14.4	6.3	LFS
	Bw1	8-16	0.0	0.0	1.3	62.4	13.8	77.5	8.8	5.4	1.5	15.7	6.8	LFS
	Bw2	16-26	0.0	0.0	1.4	63.3	16.6	81.3	6.9	5.0	1.3	13.2	5.5	LFS
	Bt1	26-37	0.0	0.0	1.2	58.1	15.3	74.6	6.6	2.4	2.0	11.0	14.4	FSL
	Bt2	37-51	0.0	0.0	2.1	57.2	13.4	72.7	3.2	2.0	1.5	6.7	20.6	SCL
	BC	51-60	0.0	0.0	1.8	57.3	16.1	75.2	7.1	1.8	0.0	8.9	15.9	FSL
	BC	60-69	0.0	0.0	3.1	61.5	15.6	80.2	6.6	1.0	0.0	7.6	12.2	FSL
	C	69-80	0.0	0.0	0.2	76.3	13.2	89.7	5.4	0.8	0.0	6.2	4.1	FS
Foley														
(S74AR-147-01)	Ap1	0-4	0.6	1.3	6.1	6.8	8.0	22.8	26.2	30.8	7.1	64.1	13.1	SIL
	Ap2	4-9	0.2	0.5	5.4	5.9	8.1	20.1	27.7	31.3	7.5	66.5	13.4	SIL
	Eg1	9-16	0.2	0.5	6.8	5.8	6.0	19.3	29.4	30.7	6.5	66.6	14.1	SIL
	Eg2	16-20	0.3	0.8	6.7	5.0	6.6	19.4	28.1	30.0	6.3	64.4	16.2	SIL
	B/E1	20-26	0.2	0.7	4.7	4.8	7.1	17.5	24.4	29.3	6.0	59.7	22.8	SIL
	B/E2	26-41	0.4	1.0	4.2	1.3	5.5	12.4	24.6	25.8	8.7	59.1	28.5	SICL
	B/E3	41-52	0.2	1.1	1.3	1.6	5.5	9.7	25.4	20.3	7.3	53.0	37.3	SICL
	Btng	52-67	2.4	3.7	2.4	1.0	9.6	19.1	28.9	18.3	6.4	53.6	27.3	SICL
	BCng	67-80	0.3	1.4	7.3	12.2	13.0	34.2	34.1	16.1	6.5	56.7	9.1	SIL
Grubbs														
(S91AR-147-05)	Ap	0-5	0.1	0.8	1.4	2.6	2.6	7.5	47.3	24.2	6.7	78.2	14.3	SIL
	BA	5-12	0.1	0.6	1.0	1.5	1.7	4.9	29.7	24.6	6.4	60.7	34.4	SICL
	Bt1	12-20	0.1	0.1	0.3	0.6	1.0	2.1	18.2	18.1	5.5	41.8	56.1	SIC
	Bt2	20-26	0.1	0.1	0.1	0.3	1.2	1.8	24.5	21.2	6.0	51.7	46.5	SIC
	Btg1	26-40	0.1	0.1	0.1	0.3	1.8	2.4	34.5	26.4	5.2	66.1	31.5	SICL
	Btg2	40-52	0.1	0.2	0.3	0.5	2.1	3.2	32.0	33.0	7.1	72.1	24.7	SIL
	B't	52-64	0.1	0.2	0.3	0.9	3.7	5.2	31.9	33.7	8.0	73.6	21.2	SIL
	BC	64-76	0.1	0.5	0.6	1.3	5.5	8.0	33.0	32.6	6.9	72.5	19.5	SIL
Hillemann														
(S74AR-147-02)	Ap1	0-3	0.3	0.5	1.1	0.1	2.8	4.8	35.3	43.5	5.3	84.1	11.1	SI
	Ap2	3-8	0.2	0.3	0.9	0.2	2.8	4.4	32.6	44.5	5.2	82.3	13.3	SIL
	Eg	8-15	0.1	0.5	0.4	1.0	1.8	3.8	27.0	43.4	7.0	77.4	18.8	SIL
	Bt	15-23	0.1	0.1	0.3	0.4	1.4	2.3	22.1	31.4	4.1	57.6	40.1	SIC
	Btg	23-28	0.0	0.1	0.3	0.4	1.3	2.1	22.2	37.1	7.2	66.5	31.4	SICL
	B/E1	28-40	0.0	0.2	0.3	0.1	2.0	2.6	25.3	36.6	8.7	70.6	26.8	SIL
	B/E21	40-49	0.0	0.2	0.5	1.1	4.2	6.0	28.5	35.6	6.3	70.4	23.6	SIL
	B/E22	49-57	0.0	0.2	0.6	1.2	4.9	6.9	29.1	34.4	6.8	70.3	22.8	SIL
	B/E3	57-70	0.0	0.1	0.7	2.1	4.1	7.0	25.3	29.7	4.7	59.7	33.3	SICL
	Btng	70-80	0.0	0.1	0.7	4.1	6.3	11.2	24.7	25.7	4.4	54.8	34.0	SICL
Overcup														
(S89AR-149-08)	Ap	0-4	0.2	0.7	0.6	1.7	3.2	6.4	29.9	33.9	7.9	71.7	21.9	SIL
	Eg	4-8	0.6	1.8	1.0	1.7	3.0	8.1	25.4	37.7	10.2	73.3	18.6	SIL
	Btg1	8-22	0.1	0.1	0.2	0.4	1.1	1.9	14.5	24.4	8.5	47.4	50.7	SIC
	Bgt21	22-33	0.0	0.1	0.1	0.4	1.1	1.7	14.6	23.2	8.6	46.4	51.9	SIC
	Btg22	33-44	0.1	0.1	0.1	0.6	1.5	2.4	16.7	23.8	8.3	48.8	48.8	SIC
	Btg31	44-52	0.1	0.1	0.2	0.7	1.6	2.7	19.2	23.7	9.2	52.1	45.2	SIC
	Btg32	52-61	0.0	0.1	0.2	1.0	1.9	3.2	22.3	26.5	7.5	56.3	40.5	SIC
	BC	61-72	0.1	0.3	0.3	1.4	2.8	4.9	23.6	28.0	8.4	60.0	35.1	SICL

Table 15.--Physical Test Data for Selected Soils--Continued

Soil name and pedon number	Horizon	Depth (in)	Fine earth particle-size distribution (percent)												Textural Class
			Sand (mm)						Silt (um)				Clay (um)		
			Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Total (2-0.05)	Coarse (50-20)	Medium (20-5)	Fine (5-2)	Total (50-2)	Total (<2)		
Patterson															
(S91AR-147-01)	Ap1	0-6	0.1	0.1	0.4	51.7	17.3	69.6	12.6	7.1	4.3	24.0	6.4		FSL
	Ap2	6-10	0.1	0.1	0.3	53.1	15.6	69.2	12.1	8.7	5.3	26.1	4.7		FSL
	Eg1	10-16	0.1	0.1	0.3	59.9	3.7	64.1	12.5	9.0	5.1	26.6	9.3		FSL
	Eg21	16-24	0.1	0.1	0.3	52.2	14.1	66.8	10.4	9.2	5.9	25.5	7.7		FSL
	Eg22	24-33	0.1	0.1	0.3	55.9	7.8	64.2	14.4	8.7	4.9	28.0	7.8		FSL
	Btg1	33-43	0.1	0.1	0.2	47.5	11.4	59.3	4.6	4.7	4.3	13.6	27.1		SCL
	Btg2	43-53	0.1	0.1	0.2	58.5	4.9	63.8	10.3	0.6	2.6	13.5	22.7		SCL
	BCg	53-67	0.1	0.1	0.6	66.2	5.3	72.3	---	---	---	14.7	13.0		FSL
	Cg1	67-80	0.1	0.1	0.4	72.2	5.5	78.3	---	---	---	14.1	7.6		LFS
	Cg2	80-90	0.1	0.1	0.5	71.9	10.1	88.7	---	---	---	5.6	5.7		FS
Teksob															
(S90AR-149-01)	Ap1	0-5	0.0	0.0	2.5	37.8	7.3	47.6	22.1	20.9	0.8	44.1	8.3		L
	Ap2	5-10	0.0	0.0	3.1	38.6	6.6	48.3	20.5	17.5	3.2	41.2	10.5		L
	BA	10-20	0.0	0.0	3.0	36.2	5.5	44.7	18.0	18.2	4.8	41.0	14.3		L
	Bt1	20-27	0.0	0.0	2.7	30.6	5.5	38.8	14.8	14.1	4.6	33.5	27.7		CL
	Bt2	27-40	0.0	0.0	4.9	45.5	5.9	56.3	9.8	6.1	1.8	17.7	26.0		SCL
	BC	40-51	0.0	0.0	8.1	69.2	3.3	80.6	4.6	0.7	0.2	5.5	13.9		FSL
	C1	51-65	0.0	0.0	10.1	75.8	2.4	88.3	---	---	---	6.1	5.6		FS
	C2	65-80	0.0	0.0	14.1	73.9	2.5	90.5	---	---	---	3.6	5.9		FS
Tipp															
(S91AR-147-07)	Ap1	0-5	0.1	0.2	0.2	0.8	1.2	2.5	13.6	38.5	16.7	68.8	28.7		SICL
	Ap2	5-10	0.1	0.2	0.2	0.6	1.2	2.3	12.1	37.5	16.5	66.1	31.6		SICL
	Bw1	10-21	0.1	0.3	0.5	1.1	1.0	3.0	5.1	31.5	20.2	56.8	40.2		SIC
	Bw2	21-34	0.1	0.3	0.4	1.0	0.9	2.7	6.1	32.6	17.2	55.9	41.4		SIC
	Bw3	34-47	0.4	0.8	0.9	1.6	1.3	5.0	3.2	26.6	19.7	49.5	45.5		SIC
	Bw4	47-60	0.1	0.5	1.1	1.9	1.6	5.2	7.7	28.6	16.4	52.7	42.1		SIC
	Bw5	60-77	0.1	0.3	0.5	1.0	1.5	3.4	14.4	34.4	9.6	58.4	38.2		SICL
Tuckerman															
(S91AR-147-03)	Ap	0-7	0.1	0.1	0.8	43.5	4.5	49.0	27.9	8.6	5.1	41.6	9.4		L
	Eg1	7-12	0.1	0.1	0.6	39.7	9.3	49.8	30.0	8.6	4.7	43.3	6.9		FSL
	Eg2	12-18	0.1	0.1	0.6	40.4	9.3	50.5	2.0	35.2	3.3	40.5	9.0		L
	Btg1	18-25	0.1	0.1	0.6	36.4	7.8	45.0	25.7	9.5	2.3	37.5	17.5		L
	Btg2	25-36	0.1	0.2	0.6	25.2	6.5	32.6	15.1	18.5	5.6	39.2	28.2		CL
	Btg3	36-48	0.4	0.9	1.4	23.9	7.1	33.7	11.4	23.5	4.5	39.4	26.9		L
	BCg	48-57	0.1	0.1	0.9	69.1	2.1	72.3	8.0	4.4	2.4	14.8	12.9		FSL
	Cg1	57-68	0.1	0.5	1.2	81.9	2.9	86.6	---	---	---	8.1	5.3		LFS
	Cg2	68-77	0.2	0.5	4.9	33.7	4.7	44.0	28.4	12.2	2.5	43.1	12.9		L
	Cg3	77-86	0.1	1.3	39.5	48.3	2.2	91.4	2.8	1.6	2.2	6.6	2.0		S
Wiville															
(S89AR-147-02)	Ap1	0-5	0.0	0.2	6.8	52.6	11.5	71.1	11.5	9.8	1.4	22.7	6.2		FSL
	Ap2	5-11	0.0	0.2	5.6	54.5	11.8	72.1	10.6	8.1	2.8	21.5	6.4		FSL
	BA	11-18	0.0	0.2	4.7	44.6	11.8	61.3	12.0	10.9	4.3	27.2	11.5		FSL
	Bt1	18-27	0.0	0.2	3.9	42.1	12.3	58.5	12.3	11.1	4.3	27.7	13.8		FSL
	Bt21	27-37	0.0	0.1	3.0	35.1	14.2	52.4	9.2	9.6	4.2	23.0	24.6		SCL
	Bt22	37-47	0.0	0.1	2.6	36.4	18.2	57.3	11.2	4.9	3.2	19.3	23.4		SCL
	Bt23	47-56	0.0	0.1	5.8	42.2	18.3	66.4	10.1	4.5	0.4	15.0	18.6		FSL
	BC	56-64	0.0	0.4	11.8	55.9	9.6	77.5	7.9	1.9	1.4	11.2	11.3		FSL
	C	64-78	0.0	0.1	5.4	81.8	4.5	91.8	3.3	0.5	0.3	4.1	4.1		FS

Table 15.--Physical Test Data for Selected Soils--Continued

Soil name and pedon number	Horizon	Depth (in)	Fine earth particle-size distribution (percent)											Textural Class
			Sand (mm)						Silt (um)				Clay (um)	
			Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Total (2-0.05)	Coarse (50-20)	Medium (20-5)	Fine (5-2)	Total (50-2)	Total (<2)	
Yancopin (S91AR-147-06)	Ap	0-4	0.2	0.3	0.3	5.3	4.0	10.1	13.5	33.5	13.6	60.6	29.3	SICL
	Bg11	4-16	0.1	0.1	0.2	1.3	2.9	4.6	13.6	32.9	14.8	61.3	34.1	SICL
	Bg12	16-28	0.2	0.4	0.4	1.5	4.2	6.7	17.2	32.2	12.2	61.6	31.7	SICL
	Bg13	28-40	0.3	0.6	0.5	2.2	4.9	8.5	18.0	31.7	12.2	61.9	29.6	SICL
	Bg21	40-48	0.2	0.5	0.7	2.0	3.0	6.4	13.4	29.6	15.3	58.3	35.3	SICL
	Bg22	48-56	0.7	1.1	0.9	2.2	2.0	6.9	13.0	28.4	15.2	56.6	36.5	SICL
	BC11	56-66	0.6	1.1	0.9	2.1	2.5	7.2	14.3	29.7	13.0	57.0	35.8	SICL
	BC12	66-76	0.3	1.0	0.9	2.1	2.7	7.0	16.3	29.3	12.4	58.0	35.0	SICL

Table 16.--Chemical Analyses of Selected Soils

(All analysis run in duplicate. All data reported on oven dry basis. Absence of an entry indicates that the determination was not made; 0.0=<0.05 cmol/kg. All method citations are from Soil Survey Investigation Report No. 1, 1984. The pedons are typical of the soil series in the survey area. For the location of the pedons, see the section "Soil Series and Their Morphology".)

Soil name and pedon number	Horizon	Depth (in)	pH 8C1A	Total Carbon (pct) 6A2B	Extractable bases 5A6 K (cmol/kg of soil) 6Q2B	Ca 6N2E	Mg 602D	Na 6P2B	Extractable acidity 6H1A	Sum bases	Sum cations 5A3A	Base saturation (pct) 5C3	Na saturation (pct)	Cation exchange capacity 100 gm/ clay
Bulltown														
(S89AR-147-01)	Ap1	0-4	4.9	0.34	0.2	1.0	0.1	0.1	2.1	1.4	3.5	40	3	83
	Ap2	4-8	5.7	0.19	0.2	1.8	0.1	0.1	1.9	2.2	4.1	54	2	65
	Bw1	8-16	5.8	0.13	0.2	2.1	0.1	0.1	1.1	2.5	3.6	69	3	53
	Bw2	16-26	5.7	0.07	0.1	1.6	0.2	0.1	1.0	2.0	3.0	67	3	55
	Bt1	26-37	5.9	0.13	0.2	5.5	0.6	0.1	2.9	6.4	9.3	69	1	65
	Bt2	37-51	5.7	0.10	0.3	7.9	1.4	0.1	4.6	9.7	14.3	68	1	69
	BC1	51-60	5.4	0.10	0.2	6.0	1.2	0.1	4.1	7.5	11.6	65	1	73
	BC2	60-69	5.4	0.08	0.2	4.4	0.9	0.1	3.4	5.6	9.0	62	1	74
	C	69-80	5.6	0.03	0.1	2.1	0.5	0.0	1.6	2.7	4.3	63	0	105
Foley														
(S74AR-147-01)	Ap1	0-4	5.9	1.5[1]	0.3[2]	2.3[3]	1.4[4]	0.2[5]	8.1[6]	4.2	12.3	34	2	94
	Ap2	4-9	5.5	1.0[1]	0.1[2]	2.5[3]	1.2[4]	0.2[5]	8.3[6]	4.0	12.3	33	2	92
	Eg1	9-16	5.5	0.4[1]	0.1[2]	2.4[3]	1.4[4]	0.4[5]	6.9[6]	4.3	11.2	38	4	79
	Eg2	16-20	5.7	0.6[1]	0.1[2]	2.4[3]	2.1[4]	0.5[5]	7.7[6]	5.1	12.8	40	4	79
	B/E1	20-26	6.3	0.1[1]	0.2[2]	3.3[3]	5.2[4]	1.4[5]	5.1[6]	10.1	15.2	66	9	67
	B/E2	26-41	7.3	0.1[1]	0.3[2]	4.0[3]	10.9[4]	2.3[5]	4.5[6]	17.5	22.0	80	10	77
	B/E3	41-52	7.7	0.1[1]	0.4[2]	5.8[3]	14.3[4]	3.8[5]	5.3[6]	24.3	29.6	82	13	79
	Btng	52-67	8.4	0.2[1]	0.4[2]	12.9[3]	13.2[4]	3.4[5]	3.6[6]	29.9	33.5	89	10	123
	BCng	67-80	8.4	0.1[1]	0.2[2]	8.2[3]	6.5[4]	2.0[5]	2.8[6]	16.9	19.7	86	10	216
Grubbs														
(S91AR-147-05)	Ap	0-5	6.5	1.74	0.5	12.1	4.2	0.2	2.8	17.0	19.8	86	1	138
	BA	5-12	5.6	0.52	0.3	12.1	3.9	0.4	8.6	16.7	25.3	66	2	74
	Bt1	12-20	4.8	0.31	0.3	9.0	8.3	1.0	23.8	18.6	42.4	44	2	76
	Bt2	20-26	4.8	0.21	0.4	6.3	8.6	1.2	21.5	16.5	38.0	43	3	82
	Btg1	26-40	5.1	0.15	0.4	7.1	9.0	1.5	13.8	18.0	31.8	57	5	101
	Btg2	40-52	5.4	0.12	0.3	8.5	10.3	2.0	7.5	21.1	28.6	74	7	116
	B't	52-64	6.3	0.14	0.3	8.8	8.6	1.9	2.9	19.6	22.5	87	8	106
	BC	64-76	6.9	0.14	0.2	8.4	7.0	1.7	3.0	17.3	20.3	85	8	104
Hillemann														
(S74AR-147-02)	Ap1	0-3	7.3	1.8[1]	0.1[2]	5.0[3]	2.0[4]	0.3[5]	5.2[6]	7.4	12.6	59	2	114
	Ap2	3-8	7.5	1.1[1]	0.1[2]	5.0[3]	1.6[4]	0.4[5]	6.3[6]	7.1	13.4	53	3	101
	Eg1	8-15	5.7	0.6[1]	0.1[2]	2.7[3]	0.9[4]	0.6[5]	8.6[6]	4.3	12.9	33	5	69
	Bt	15-23	5.5	1.1[1]	0.2[2]	2.9[3]	1.4[4]	2.2[5]	21.3[6]	6.7	28.0	24	8	70
	Btg	23-28	5.5	0.6[1]	0.3[2]	3.9[3]	1.9[4]	3.0[5]	17.1[6]	9.1	26.2	35	11	83
	B/E1	28-40	5.5	0.3[1]	0.3[2]	5.7[3]	3.1[4]	4.2[5]	9.6[6]	13.3	22.9	58	18	85
	B/E21	40-49	7.2	0.1[1]	0.2[2]	6.0[3]	3.1[4]	4.2[5]	3.0[6]	13.5	16.5	82	25	70
	B/E22	49-57	7.8	0.1[1]	0.2[2]	6.0[3]	3.2[4]	4.2[5]	1.9[6]	13.6	15.5	88	27	68
	B/E3	57-70	8.0	0.1[1]	0.2[2]	7.8[3]	3.9[4]	4.2[5]	3.3[6]	16.1	19.4	83	22	58
	Btng	70-80	8.0	0.1[1]	0.3[2]	8.5[3]	4.0[4]	4.4[5]	3.0[6]	17.2	20.2	85	22	59
Overcup														
(S89AR-147-08)	Ap	0-4	5.5	0.90	0.2	6.0	2.3	0.5	10.3	9.0	19.3	47	3	88
	Eg	4-8	5.3	0.23	0.1	2.1	1.8	0.6	7.4	4.6	12.0	38	5	65
	Btg1	8-22	4.6	0.29	0.2	2.2	6.0	2.8	23.0	11.2	34.2	33	8	67
	Btg21	22-33	4.6	0.31	0.2	2.8	7.7	3.9	21.1	14.6	35.7	41	11	69
	Btg22	33-44	4.6	0.25	0.3	4.0	8.9	4.3	18.8	17.5	36.3	48	12	74
	Btg31	44-52	4.5	0.21	0.3	4.8	9.8	4.4	15.4	19.3	34.7	56	13	77
	Btg32	52-61	4.7	0.17	0.2	5.3	9.9	4.4	11.8	19.8	31.6	63	14	78
	BC	61-72	5.2	0.14	0.2	6.5	10.6	4.6	7.7	21.9	29.6	74	16	84

See footnotes at end of table.

Table 16.--Chemical Analyses of Selected Soils--Continued

Soil name and pedon number	Horizon	Depth (in)	pH 8C1A	Total Carbon (pct) 6A2B	Extractable bases 5A6 K 6Q2B	Ca 6N2E	Mg 6O2D	Na 6P2B	Extractable acidity 6H1A	Sum bases	Sum cations 5A3A	Base saturation (pct) 5C3	Na saturation (pct)	Cation exchange capacity 100 gm/ clay
					cmol/kg of soil									
Patterson														
(S91AR-147-01)	Ap1	0-6	5.1	0.55	0.0	1.7	0.1	0.1	3.3	1.9	5.2	37	2	81
	Ap2	6-10	4.8	0.46	0.1	1.2	0.2	0.2	3.5	1.7	5.2	33	4	111
	Eg1	10-16	5.1	0.38	0.1	4.3	0.2	0.1	3.4	4.7	8.1	58	1	87
	Eg21	16-24	5.2	0.29	0.1	4.1	0.2	0.2	2.5	4.5	7.0	65	3	92
	Eg22	24-33	5.3	0.22	0.1	2.0	0.1	0.3	1.9	2.5	4.4	57	7	56
	Btg1	33-43	5.2	0.26	0.2	9.8	0.1	0.3	6.6	10.4	17.0	61	2	63
	Btg2	43-53	5.2	0.18	0.2	11.3	1.0	0.4	4.8	12.9	17.7	73	2	78
	BCg	53-67	5.3	0.12	0.2	7.8	1.7	0.1	2.7	9.8	12.5	78	1	96
	Cg1	67-80	5.6	0.06	0.1	5.2	1.0	0.1	1.1	6.4	7.5	85	1	99
	Cg2	80-90	6.3	0.05	0.1	3.0	1.1	0.1	0.1	4.3	4.4	98	2	77
Teksob														
(S90AR-147-01)	Ap1	0-5	7.2	0.56	0.3	6.4	0.7	0.2	1.3	7.6	8.9	85	2	107
	Ap2	5-10	7.2	0.35	0.2	5.5	0.6	0.1	1.6	6.4	8.0	80	1	76
	BA	10-20	7.2	0.20	0.2	5.5	0.7	0.1	1.3	6.5	7.8	83	1	55
	Bt1	20-27	7.0	0.26	0.2	10.5	2.5	0.2	3.3	13.4	16.7	80	1	60
	Bt2	27-40	5.6	0.17	0.2	7.5	3.5	0.3	5.4	11.5	16.9	68	2	65
	BC	40-51	5.3	0.14	0.1	3.3	1.4	0.2	2.4	5.0	7.4	68	3	53
	C1	51-65	5.4	0.11	0.0	3.0	1.1	0.1	1.3	4.2	5.5	76	2	98
	C2	65-80	5.7	0.11	0.1	3.4	1.1	0.1	1.4	4.7	6.1	77	2	103
Tipp														
(S91AR-147-07)	Ap1	0-5	6.2	1.89	0.2	16.3	4.1	0.1	5.6	20.9	26.5	79	0	92
	Ap2	5-10	6.8	1.64	0.1	18.4	4.1	0.1	4.2	22.7	26.9	84	0	85
	Bw1	10-21	6.8	1.64	0.1	20.6	6.8	0.1	6.1	27.6	33.7	82	0	84
	Bw2	21-34	6.7	0.96	0.1	17.5	5.8	0.2	5.8	23.6	29.4	80	1	71
	Bw3	34-47	6.6	1.05	0.5	17.7	6.8	0.1	7.2	25.1	32.3	78	0	71
	Bw4	47-60	6.5	0.49	0.1	13.9	6.9	0.1	3.9	21.0	24.9	84	0	59
	Bw5	60-77	6.5	0.41	0.2	14.0	8.3	0.2	6.0	22.7	28.7	79	1	75
Tuckerman														
(S91AR-147-03)	Ap	0-7	5.6	0.46	0.2	2.9	1.0	0.1	1.7	4.2	5.9	71	2	63
	Eg1	7-12	5.9	0.16	0.1	2.7	0.8	0.1	0.6	3.7	4.3	86	2	62
	Eg2	12-18	5.6	0.17	0.1	2.8	0.7	0.1	1.1	3.7	4.8	77	2	53
	Btg1	18-25	5.0	0.19	0.2	2.7	2.1	0.1	8.0	5.1	13.1	39	1	75
	Btg2	25-36	5.0	0.15	0.3	6.5	9.0	0.1	4.5	15.9	20.4	78	0	72
	Btg3	36-48	5.5	0.14	0.4	10.8	14.6	0.1	5.4	25.9	31.3	83	0	116
	BCg	48-57	6.0	0.06	0.2	6.9	6.7	0.1	0.1	13.9	14.0	99	1	109
	Cg1	57-68	6.2	0.04	0.1	4.2	2.3	0.1	0.0	6.7	6.7	100	1	126
	Cg2	68-77	7.8	7	7	7	7	7	7	7	7	---	---	---
	Cg3	77-86	8.1	7	7	7	7	7	7	7	7	---	---	---
Wiville														
(S89AR-147-02)	Ap1	0-5	5.7	0.64	0.2	2.0	0.4	0.0	3.2	2.6	5.8	45	0	94
	Ap2	5-11	5.8	0.35	0.3	1.9	0.1	0.0	2.7	2.3	5.0	46	0	78
	BA	11-18	6.1	0.26	0.3	3.8	0.2	0.0	2.6	4.3	6.9	62	0	60
	Bt1	18-27	6.0	0.21	0.3	4.4	0.3	0.1	2.9	5.1	8.0	64	1	58
	Bt21	27-37	6.0	0.24	0.4	7.9	1.1	0.1	4.5	9.5	14.0	68	1	57
	Bt22	37-47	5.9	0.19	0.4	7.5	2.0	0.1	4.5	10.0	14.5	69	1	62
	Bt23	47-56	5.6	0.14	0.2	4.7	2.1	0.1	4.6	7.1	11.7	61	1	63
	BC	56-64	5.2	0.09	0.2	1.8	1.5	0.1	3.5	3.6	7.1	51	1	63
	C	64-78	5.3	0.06	0.1	1.2	0.9	0.1	1.6	2.3	3.9	59	3	95

See footnotes at end of table.

Table 16.--Chemical Analyses of Selected Soils--Continued

Soil name and pedon number	Horizon	Depth (in)	pH 8C1A	Total Carbon (pct) 6A2B	Extractable bases 5A6 K 6Q2B	Ca 6N2E	Mg 6O2D	Na 6P2B	Extractable acidity 6H1A	Sum bases	Sum cations 5A3A	Base saturation (pct) 5C3	Na saturation (pct)	Cation exchange capacity 100 gm/ clay
					cmol/kg of soil									
Yancopin (S91AR-147-06)	Ap	0-4	6.2	1.69	0.1	13.7	4.6	0.1	5.9	18.5	24.4	76	0	83
	Bg11	4-16	6.5	1.10	0.0	14.9	5.6	0.1	5.2	20.6	25.8	80	0	76
	Bg12	16-28	6.6	0.99	0.2	15.1	6.1	0.1	4.5	21.5	26.0	83	0	82
	Bg13	28-40	6.5	0.77	0.2	14.1	5.1	0.1	4.7	19.5	24.2	81	0	82
	Bg21	40-48	6.7	0.68	0.1	17.1	6.5	0.1	4.4	23.8	28.2	84	0	80
	Bg22	48-56	6.7	0.67	0.1	15.1	6.5	0.2	4.4	21.9	26.3	83	1	72
	BC11	56-66	6.8	0.45	0.1	14.0	6.5	0.1	3.5	20.7	24.2	86	0	68
	BC12	66-76	6.7	0.37	0.1	13.3	5.4	0.1	3.8	18.9	22.7	83	0	65

[1] Reported as percent organic matter, method 6A1A.
[2] Determined by method 6Q2A.
[3] Determined by method 6N2.
[4] Determined by method 6O2.
[5] Determined by method 6P2A.
[6] Determined by method 6H1.
[7] Carbon and cations not determined due to presence of carbonates.

Table 17.--Classification of the Soils

Soil name	Family or higher taxonomic class
Amagon	Fine-silty, mixed, active, thermic Typic Endoaqualfs
Askew	Fine-silty, mixed, active, thermic Aquic Hapludalfs
Bonn	Fine-silty, mixed, superactive, thermic Glossic Natraqualfs
Bulltown	Loamy, siliceous, active, thermic Arenic Hapludalfs
Calhoun	Fine-silty, mixed, active, thermic Typic Glossaqualfs
Calloway	Fine-silty, mixed, active, thermic Aquic Fragiudalfs
Dubbs	Fine-silty, mixed, active, thermic Typic Hapludalfs
Dundee	Fine-silty, mixed, active, thermic Typic Endoaqualfs
Foley	Fine-silty, mixed, active, thermic Albic Glossic Natraqualfs
Forestdale	Fine, smectitic, thermic Typic Endoaqualfs
Grenada	Fine-silty, mixed, active, thermic Oxyaquic Fragiudalfs
Grubbs	Fine, mixed, active, thermic Albaquic Hapludalfs
Henry	Coarse-silty, mixed, active, thermic Typic Fragiaqualfs
Hillemann	Fine-silty, mixed, active, thermic Albic Glossic Natraqualfs
Jackport	Fine, smectitic, thermic Chromic Epiaquerts
Kobel	Fine, smectitic, nonacid, thermic Vertic Endoaquepts
Lafe	Fine-silty, mixed, active, thermic Glossaquic Natrudalfs
McCrory	Fine-loamy, mixed, active, thermic Albic Glossic Natraqualfs
Oaklimeter	Coarse-silty, mixed, active, thermic Fluvaquentic Dystrochrepts
Overcup	Fine, smectitic, thermic Vertic Albaqualfs
Patterson	Fine-loamy, mixed, active, thermic Typic Endoaqualfs
Taylorbay	Fine-silty, mixed, active, thermic Cumulic Hapludolls
Teksob	Fine-loamy, mixed, active, thermic Typic Hapludalfs
Tichnor	Fine-silty, mixed, active, thermic Typic Endoaqualfs
Tipp	Fine, mixed, active, thermic Cumulic Hapludolls
Tuckerman	Fine-loamy, mixed, active, thermic Typic Endoaqualfs
Wiville	Fine-loamy, siliceous, active, thermic Ultic Hapludalfs
Yancopin	Fine-silty, mixed, superactive, nonacid, thermic Typic Endoaquepts